

Nature's Remedy of Massachusetts Inc.

Town of Grafton

5.10.3 Application Requirements for a Marijuana Establishment

RECEIVED

JAN 23 2020

**Planning Board
Grafton, MA**

5.10.3 Application Requirements

1. The name and address of each owner of the facility/operation
Valiant Enterprises LLC
69 Milk street
Westborough Ma
2. Application status:
If our application with Grafton is approved, we will begin the application process with the CCC to combine our allowable canopy square footage of Grafton to our existing cultivation in Lakeville. See attached CCC Lakeville license.
3. Evidence that the Applicant has site control: See attached Deed
4. Designated representatives: See Attached
5. Exterior Security: See Attached site plan for locations of exterior cameras, perimeter fencing and lighting wall packs. Alarm systems will be coordinated with the CCC requirements and local law enforcement.
6. Management Plan: See Attached
7. Traffic Study: See Attached

2. Application Status:



MC281482
License Number
04/11/2020
Expiration Date

Pursuant to its authority and power to license Marijuana Establishments granted to it under Chapter 94G of the Massachusetts General Laws,

The Cannabis Control Commission hereby grants a final Marijuana Establishment license to:

Nature's Remedy of Massachusetts, Inc.

Marijuana Establishment permitted to operate at the following address

310 Kenneth Welch Drive
Lakeville, MA 02347

Marijuana Establishment licensed to perform operations as:

**Cultivation – Tier 4 / Indoor
(20,001 – 30,000 sq. ft)**

Steven J. Hoffman | Chairman

Kay Doyle | Commissioner

Jennifer Flanagan | Commissioner

Britte McBride | Commissioner

Shaleen Title | Commissioner

Shawn Collins | Executive Director

The Marijuana Establishment is subject to M.G.L. 94G, Commission regulations, Commission decisions, and all other legal requirements. The Marijuana Establishment must remain fully compliant with said requirements and legal authorities until such time that it is approved by the Commission to cease operations.

3. Evidence that the Applicant has site control:



2017 00119285

Bk: 57943 Pg: 270

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MASSACHUSETTS EXCISE TAX
Worcester District ROD #20 001
Date: 10/26/2017 04:03 PM
Ctil# 175140 05200 Doc# 00119285
Fee: \$3,192.00 Cons: \$700,000.00

QUITCLAIM DEED

85 GREEN STREET LIMITED PARTNERSHIP, a Delaware limited partnership with a principal place of business at 90 Ellsworth Street, Worcester, Massachusetts, for consideration paid, and in full consideration of Seven Hundred Thousand Dollars and no/100 (\$700,000.00),

grant to VALIANT ENTERPRISES, LLC a Massachusetts limited liability company, having a mailing address of 1400 Hancock Street, Third Floor, Quincy, MA 02169,

with QUITCLAIM COVENANTS

the land in said Grafton, Worcester County, Massachusetts bounded and described in Exhibit A attached hereto, known and numbered as 8 Millennium Drive, Grafton, MA.

Meaning and intending to convey and hereby conveying the same premises as conveyed to the Grantor herein by Deed dated July 1, 2003, recorded with the Worcester County Register of Deeds in Book 30622, Page 198.

The premises described herein are conveyed subject to all easements, rights, restrictions, covenants, reservations and encumbrances of record, insofar as the same are now in force and applicable.

Property Address: 8 Millennium Drive, Grafton, MA

513

Executed as a sealed instrument this 19th day of October 2017.

85 GREEN STREET LIMITED
PARTNERSHIP,

a Delaware limited partnership

By: 85 Green Street, Inc.,
a Delaware corporation,
its sole general partner

By: Joseph J. Bafaro
Joseph J. Bafaro, President

By: Herbert R. Rasnick
Herbert R. Rasnick, Treasurer

COMMONWEALTH OF MASSACHUSETTS

Worcester County, ss.

On this 19th day of October, 2017, before me, the undersigned Notary Public, personally appeared the above-named Joseph J. Bafaro duly authorized officer of 85 Green Street Limited Partnership, and proved to me by satisfactory evidence of identification, being (check whichever applies): ☐ driver's license or other state or federal governmental document bearing a photographic image, ☐ oath or affirmation of a credible witness known to me who knows the above signatory, or ☒ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily as his free act and deed, and the free act and deed of Joseph J. Bafaro, as President of 85 Green Street, Inc., sole general partner of 85 Green Street Limited Partnership, for its stated purpose.

Shesha M. Bafaro

Notary Public

My commission expires: Nov. 24, 2017

COMMONWEALTH OF MASSACHUSETTS

Worcester County, ss.

On this 19th day of October, 2017, before me, the undersigned Notary Public, personally appeared the above-named Herbert R. Rasnick duly authorized officer of 85 Green

Street Limited Partnership, and proved to me by satisfactory evidence of identification, being (check whichever applies): ☐ driver's license or other state or federal governmental document bearing a photographic image, ☐ oath or affirmation of a credible witness known to me who knows the above signatory, or ☒ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily as his free act and deed, and the free act and deed of Herbert R. Rasnick, as President of 85 Green Street, Inc., sole general partner of 85 Green Street Limited Partnership, for its stated purpose.

Shereva M. Bayaro

Notary Public

My commission expires: Nov. 24, 2017

EXHIBIT A

LEGAL DESCRIPTION – LOT G-2-9, MILLENNIUM DRIVE, GRAFTON, MA

A certain parcel of land situated in Grafton, Worcester County, Massachusetts, and shown as Lot G-2-9 on a plan entitled "Subdivision Plan of Land for Lots G-2-9 & G-2-10 Millennium Drive Grafton, Massachusetts prepared for Worcester Business Development Corp. Charles H. Sells, Inc. dated February 14, 2003 and recorded with Worcester District Registry of Deeds in Plan Book 793 Plan 16 and bounded and described as follows:

Beginning at a point at the most northerly corner of Lot G-2-9 on the northwesterly side of Millennium Drive as shown on said plan;

THENCE along a curve to the left having a radius of 60.00 for a distance of 76.86 feet to an iron rod found;

THENCE S. 01° 30' 30" W. 961.10 feet, along the westerly sideline of Lot G-2-7 to a drill hole at land now or formerly of Consolidated Rail as shown on the Plan;

THENCE by a curve to the left having a radius of 425 feet a distance of 23.14 feet to a stone bound/drill hole found;

THENCE S. 63° 32' 00" W. 25.02 feet to a point as shown on the

Plan; THENCE S. 26° 30' 40" E. 5.71 feet to a point as shown on the

Plan;

THENCE along a curve to the right having a radius of 1,845.77 feet for a distance of 209.37 feet as shown on the Plan;

THENCE continuing along said curve having a radius of 3057.52 feet for a distance of 184.21 feet;

THENCE N. 01° 24' 32" E. 340.88 feet along the easterly sideline of Lot G-2-10 to a point as shown on the Plan;

THENCE S. 55° 19' 24" W. 328.09 feet as shown on the Plan;

THENCE N. 87° 22' 13" W. 99.73 feet to a point as shown on the

Plan; THENCE N. 00° 41' 56" E. 142.39 feet to a point as shown on

the Plan;

THENCE N. 57' 01' 19" E. 296.29 feet to a point as shown on the Plan; THENCE S. 88' 51' 31" E. 122.11 feet to a point as shown on the Plan; THENCE N. 01' 24' 32" E. 414.19 feet to a point as shown on the Plan; THENCE N. 52' 03' 04" E. 423.59 feet as shown on the Plan;

THENCE N. 70' 32' 12" E. 72.95 feet to the point of beginning;

CONTAINING 10.613 +1- acres of land according to the Plan.

Subject to twenty-foot (20') wide existing drainage easement as shown on the Plan. Subject to a snow and ice easement as shown on the Plan.



2017 00119286

Bk: 57943 Pg: 275

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MASSACHUSETTS EXCISE TAX
Worcester District ROD #20 001
Date: 10/26/2017 04:03 PM
Ctrl# 175141 06676 Doc# 00119286
Fee: \$114.00 Cons: \$25,000.00

QUITCLAIM DEED

WORCESTER BUSINESS DEVELOPMENT CORPORATION, a Massachusetts not for profit corporation with a principal place of business of 89 Shrewsbury Street, Worcester, Massachusetts 01604, for consideration paid, and in full consideration of Twenty Five Thousand Dollars and no/100 (\$25,000.00), grants to

VALIANT ENTERPRISES, LLC a Massachusetts limited liability company, having a mailing address of 1400 Hancock Street, Third Floor, Quincy, MA 02169, with

QUITCLAIM COVENANTS

the land in the Town of Grafton, Worcester County, Commonwealth of Massachusetts shown as PARCEL "A" on the Plan entitled, "Plan of Land in the Town of Grafton, Massachusetts Prepared for Nature's Remedy of Massachusetts, Inc.," dated September 26, 2017, and recorded in the Worcester County Registry of Deeds in Plan Book 930 Plan 60.

Meaning and intending to convey and hereby conveying a portion of the premises as conveyed to the Grantor herein by Deed dated May 12, 1995, and recorded in the Worcester County Register of Deeds in Book 17040, Page 268.

The premises described herein are conveyed subject to all easements, rights, restrictions, covenants, reservations and encumbrances of record, insofar as the same are now in force and applicable.

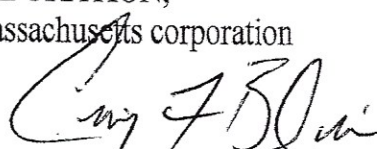
Property Address: 8 Millennium Drive, Grafton, MA

3 JB

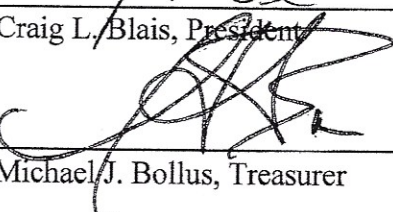
Executed as a sealed instrument this 25th day of October 2017.

WORCESTER BUSINESS DEVELOPMENT
CORPORATION,
a Massachusetts corporation

By:


Craig L. Blais, President

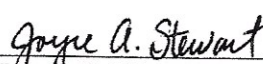
By:


Michael J. Bollus, Treasurer

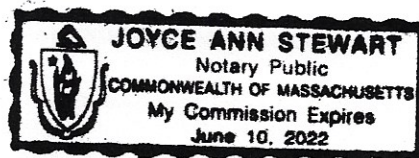
COMMONWEALTH OF MASSACHUSETTS

Worcester County, ss.

On this 25th day of October, 2017, before me, the undersigned Notary Public, personally appeared the above-named Craig L. Blais duly authorized officer of Worcester Business Development Corporation, and proved to me by satisfactory evidence of identification, being (check whichever applies): ☒ driver's license or other state or federal governmental document bearing a photographic image, ☐ oath or affirmation of a credible witness known to me who knows the above signatory, or ☐ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily as his free act and deed, and the free act and deed of Craig L. Blais, as President of Worcester Business Development Corporation, for its stated purpose.


Notary Public

My commission expires:



COMMONWEALTH OF MASSACHUSETTS

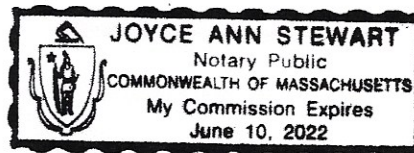
Worcester County, ss.

On this 25th day of October, 2017, before me, the undersigned Notary Public, personally appeared the above-named Michael J. Bollus duly authorized officer of Worcester Business Development Corporation, and proved to me by satisfactory evidence of identification, being (check whichever applies): ☐ driver's license or other state or federal governmental document bearing a photographic image, ☐ oath or affirmation of a credible witness known to me who knows the above signatory, or ☐ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily as his free act and deed, and the free act and deed of Michael J. Bollus, as Treasurer of Worcester Business Development Corporation, for its stated purpose.

Joyce A. Stewart

Notary Public

My commission expires:





2017 00119287

Bk: 57943 Pg: 278

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RELEASE

WORCESTER BUSINESS DEVELOPMENT CORPORATION, a Massachusetts corporation with a principal place of business of 89 Shrewsbury Street, Worcester, Massachusetts 01604, for value received, hereby releases any and all rights under the Repurchase Agreement between 85 Green Street Limited Partnership and Worcester Business Development Corporation, dated June 30, 2003, and recorded with the Worcester District Registry of Deeds in Book 30622, Page 206.

Executed this 25th day of October 2017.

WORCESTER BUSINESS DEVELOPMENT
CORPORATION,
a Massachusetts corporation

By:

Craig L. Blais, President

By:

Michael J. Bollus, Treasurer

8 Millennium Dr., Grafton, MA

2B

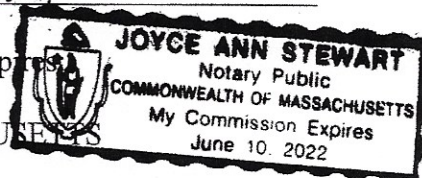
COMMONWEALTH OF MASSACHUSETTS

Worcester County, ss.

On this 25th day of October, 2017, before me, the undersigned Notary Public, personally appeared the above-named Craig L. Blais duly authorized officer of Worcester Business Development Corporation, and proved to me by satisfactory evidence of identification, being (check whichever applies): ☐ driver's license or other state or federal governmental document bearing a photographic image, ☐ oath or affirmation of a credible witness known to me who knows the above signatory, or ☐ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily as his free act and deed, and the free act and deed of Craig L. Blais, as President of Worcester Business Development Corporation, for its stated purpose.

Joyce A. Stewart
Notary Public
My commission expires

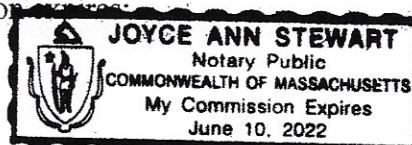
COMMONWEALTH OF MASSACHUSETTS



Worcester County, ss.

On this 25th day of October, 2017, before me, the undersigned Notary Public, personally appeared the above-named Michael J. Bollus duly authorized officer of Worcester Business Development Corporation, and proved to me by satisfactory evidence of identification, being (check whichever applies): ☐ driver's license or other state or federal governmental document bearing a photographic image, ☐ oath or affirmation of a credible witness known to me who knows the above signatory, or ☐ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily as his free act and deed, and the free act and deed of Michael J. Bollus, as Treasurer of Worcester Business Development Corporation, for its stated purpose.

Joyce A. Stewart
Notary Public
My commission expires



4. Designated Representatives:



NATURE'S
REMEDY

Nature's Remedy of Massachusetts
C/O Valiant Enterprises
69 Milk Street
Westborough MA, 01581

January 20, 2020

RE: Modification of Special Permit

Dear Grafton Planning Board:

Pursuant to Zoning By-Law 5.10.3.b, "A notarized statement signed by the organization's Chief Executive Officer and corporate attorney disclosing all of its designated representatives...", we are submitting the following information.

The Applicant, Valiant Enterprises, is 100% owned by Sammartino Investments, LLC. Sammartino Investments, LLC is a Board Operated entity, and also is the 100% owner of Nature's Remedy of Massachusetts.

With the exception of those outlined below, no investor or entity owns more than 5% of Sammartino Investments, LLC either directly or indirectly. The following is a list of all controlling individuals of the Company through ownership and the Board of Directors.

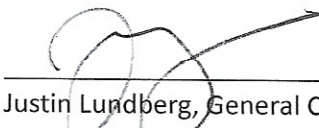
- Board Chair/General Council - Justin Lundberg, 24 Adams Street, Westborough MA 01581
- Board Member/CEO – John Brady, 9 Ladd Street Unit E, Portsmouth, NH 03801
- Board Member – Robert Carr, Jr, 17 Vassar Street, Manchester, NH 03104
- Board Member – Michael Scott, 22 Jacob Amsden Road, Westborough, MA 01581
- Board Member – Danny Wadhwani 40 Nouvelle Way, Unit N251, Natick, MA 01760

Other representatives with managerial control and ownership:

- Ashley Esper – Chief Marketing Officer – 35 Harrington Avenue Unit 1407 Shrewsbury, MA 01545
- David Miller, Sales Manager 200 Burntmeadow Road, Groton, MA 01450
- Stuart Bernstein, Chief Financial Officer 316 Tanglewood Drive, Henniker NH 03242

The above individuals are currently the only individuals who either exhibit managerial control, Board level control, or ownership in excess of 5% as of this date.

Yours Truly,


Justin Lundberg, General Counsel


John Brady, Chief Executive Office



COMMONWEALTH OF MASSACHUSETTS)

) ss.

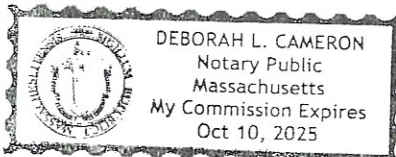
COUNTY OF Worcester)

On this 22nd day of January, 2020, before me, the undersigned notary public, personally appeared Justin Lundberg and John Brady, who proved to me through satisfactory evidence of identification, which were personally known to me to be the persons whose name is signed on the preceding or attached document, and acknowledged to me that they signed it voluntarily for its stated purpose on behalf of Sammartino Investments and Valiant Enterprises, LLC.

Notary Public

Print Name Deborah Cameron

My commission expires Oct. 10, 2025



(Use this space for notary stamp/seal)

5. Exterior Security:

Lighting Wall Pack Exterior Cameras

Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602
Tel: 508.853.1234
Fax: 508.853.1235
www.worcesterbizdev.com

Project:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Owner:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Architect:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Engineer:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Lighting Designer:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Electrical Engineer:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Structural Engineer:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

MEP Engineer:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Environmental Engineer:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Transportation Engineer:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Water Resources Engineer:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Geotechnical Engineer:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Historic Preservation:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Archaeology:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Public Works:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Fire Department:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Police Department:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Emergency Services:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Waste Management:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Public Health:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Recreation:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Arts and Culture:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Education:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Healthcare:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Manufacturing:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Retail:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Food and Beverage:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602

Hotels and Lodging:
Worcester Business Development Corporation
100 N. Main Street
Worcester, MA 01602



NO.	DATE	DESCRIPTION	BY
1	2016-03-01	Initial Design	J. D. McKeon
2	2016-03-15	Revised Design	J. D. McKeon
3	2016-03-30	Final Design	J. D. McKeon
4	2016-04-15	Construction Documents	J. D. McKeon
5	2016-05-01	As-Built	J. D. McKeon

6. Management Plan:



Grafton Management Plan

8 Millennium Drive, Grafton, MA 01536

Security Plan

Overview

Nature's Remedy of Massachusetts, Inc. ("Nature's Remedy"), has implemented Security Policies and Procedures to provide for the safe, orderly, and legal production and distribution of both medical and adult use marijuana. The following Policies and Procedures are necessary to ensure the safety and security at Nature's Remedy's Cultivation and Manufacturing facility.

Security Management Roles

Under the supervision of the Director of Compliance and CEO, the Security Supervisor is responsible for maintaining and amending all Security policies and procedures at a minimum, annually; or as needed. The Security Department will monitor Nature's Remedy's security system throughout the day and report any issues to the Compliance department. This includes monitoring the camera system, the keycard access system, and the burglar alarm. The ability to view employee's actions throughout the day will not only assist in preventing diversion but will also allow Security to clearly identify when employees are putting themselves or other employees at risk throughout their workday.

Nature's Remedy's Security department is responsible for ensuring the Grafton Cultivation and Manufacturing facility is under full compliance and employees are acting in a safe and diligent manner. Security will monitor employee's entry and exit from the building to guarantee, if there is an emergency, they have knowledge regarding employee's location and safety and can further relay that information to responding authorities. The security agent on site will always remain the main point of contact for emergency responders.

Security agents must ensure all logs and documents are completed in the appropriate manner and in a timely fashion. Once they have completed such documents, they will be submitted to the Compliance department to be filed away within the Limited Access area.

Agent Entry and Access

Access to the Nature's Remedy facility is limited to authorized agents only. All registered Nature's Remedy agents are required to enter through the East Security entrance. Security will allow agents into the building where they will be required to sign in. At this checkpoint, Security will provide agents with their lanyard, containing at a minimum: CCC Agent Registration cards / NR Access Keycards / NR Timeclock FOB's / Locker Keys. This exchange will occur prior to, and at the completion of each shift. At the discretion of the CEO, specific Directors and Managers are exempt from such procedures for operational or emergency purposes.

Agents are restricted from bringing any personal belongings beyond the break room; all personal items must be stored within the provided secure employee locker. Any item that could be used for diversion may be prohibited at the discretion of management. All agents are required to wear the provided uniform and footwear while on site, no exceptions. If an agent does not have a provided uniform on site, they will be required to wear a Tyvek suit and booties. This will prevent contamination and diversion within the facility. As a secondary precaution, Nature's Remedy requires all employees to follow the



Decontamination Procedure prior to entering the facility. This includes a 10 second run in the air shower, but additional cycles may be required.

Agents on site will only have access to necessary rooms within the facility where they have an operational role and registration clearance. This list will be kept on file and will be updated as needed. Any access request change must go through the Supervisor, Compliance Manager and Security to confirm the agent has a legitimate need to access the space and they are complying with doing so. Nature's Remedy has a strict policy against piggybacking. Each employee is required to swipe their individual access card to enter a room, no exceptions.

Visitor Access and Entry

Access within the Nature's Remedy facility is limited to authorized Registered Agents and to those who have a scheduled appointment and comply with the Security Visitor Policy. Agents are responsible for providing Security with notification of a Visitor arriving on site. Twenty-four (24) hours in advance is preferred, but exceptions can be made in emergency situations. The Visitor Policy states that all visitors must provide a valid form of identification, including; a State Issued Driver's License, a Passport, or a Military Issued ID. Once Security can confirm the identity of the Visitor on site, they will record all information into the Visitor Log, store their valid form of identification in a secure cabinet, and provide the visitor with a Visitor Badge. Visitor records will include the visitor: type / name / ID type / ID verification / the reason for the visit / the escorting agent / the visitor badge number / the time in and out. The Visitor Badge is clearly marked as "VISITOR" and does not grant access to any point within the facility. It is strictly for identification purposes and must always be worn and visible while on site.

Visitors will always be escorted by a Registered Nature's Remedy agent and will never be left unattended. It is the responsibility of both the escorting agent and the Security Agent to ensure this process is being performed properly, maintaining compliance within the facility. At the duration of the visit, Visitors are required to return their Visitor Badge in exchange for their Identification.

Active Visitor Logs are stored within the Limited Access Security Room. All preceding Visitor Logs will be stored in a locked Limited Access location within Nature's Remedy. Nature's Remedy will maintain past Visitor Logs for a minimum of one (1) year, or for the duration of any open investigation concerning a visitor on site, whichever is longer.

Building Security

Perimeter Controls, Monitoring, and Controlled Access

Nature's Remedy's Security agents will actively monitor cameras to ensure those who are not engaged in business purposes with Nature's Remedy are prohibited from loitering on the premises. The perimeter will be monitored throughout the day, and each morning Security will review the activity from the night before. Nature's Remedy's Cultivation and Manufacturing facility will always be armed while the building is unoccupied, and during operational hours, emergency exit doors will be alarmed to notify Security that the door has been opened. A third-party Central Station will vet all Alarms that occur within Nature's Remedy, contacting the appropriate law enforcement officials as well as Nature's Remedy's management team. Nature's Remedy will ensure that proper lighting is supplied around all exit points, on the perimeter of the building and in all parking areas. Foliage will be trimmed and maintained as needed to allow for the clear picture of all perimeter lines, parking lots and exit points.

Building Access Controls

Nature's Remedy utilizes Card Proximity readers and Access cards for all access to the building, both on the exterior and interior doors. There are door contacts on each door, each connected to the Keycard



system. Employee access history can easily be retrieved if their presence is ever in question. Nature's Remedy has camera views of all areas that contain marijuana and all entry and exit points within the facility; no blind spots.

Security Checks and Inspections

Nature's Remedy performs Security audits to both the camera system and the alarm system. All access Keycard Readers are tested at a minimum three times a day, once at the beginning of each Security shift. At this time, all access points are assessed for any markings or damage, and the facility in its entirety is inspected for any unusual activity, concerning behavior or unsafe practices. Once a day, Nature's Remedy Security agents complete a camera audit, calculating the storage of the system. On a monthly basis, Nature's Remedy will complete an internal security audit, confirming that all partitions of the burglar alarm are in working order. Annually, Nature's Remedy will hire a third-party company to perform a full examination of all partitions within the burglar alarm. Any issues that arise during the audit will be reported to the commission within thirty (30) business days with a plan to mitigate the issue within ten (10) days.

Prohibited Items and Weapons

Any object that constitutes a threat to Agents, Visitors, or the Nature's Remedy facility are strictly prohibited on the premises, regardless of whether the individual holds a valid permit. This includes but is not limited to: firearms / knives / pepper-spray / chemicals / explosives / box cutters / any item deemed unlawful by law enforcement. Active law enforcement entering the facility will be exempt from such procedures.

Intrusion Detection System

Nature's Remedy's facility is fully equipped with an integrated Security Control/CCTV High Definition Video Surveillance System that is operational twenty-four (24) hours a day, seven (7) days a week. The custom Intrusion Detection System (IDS) includes: an intrusion detection burglar alarm, with associated motion sensors / fire alarms / camera monitoring / proximity keycard readers / door contacts.

Central Monitoring Station

Nature's Remedy works with a third-party Central Station to monitor all Burglar Alarms. If the motion sensors detect activity while the building is armed, the system will immediately contact the Central Station, who will then contact the Grafton Police and/or Fire Department, as well as Management. When the Central Station detects a malfunction to the system, management will be contact immediately and the Central Station will inquire as to whether there is a need for law enforcement to be notified.

Security/Surveillance Rooms

Nature's Remedy's security system and all essential equipment, and recordings, will be maintained in a secure Limited Access IT/Server Room. This space will only be accessible to a limited number of agents to prevent chance of theft, loss, destruction, and alterations. The IT/Server room is always armed, both during operational hours, and after hours. Agents accessing this space are responsible for disarming the room prior to entering, using their individually selected pin. This space is limited to agents who have an essential operational need, authorized security agents, law enforcement and the CNB. A current list of authorized agents and service personnel that have access to this Limited Access room will be maintained and updated as needed and will be made available upon request. The IT/Server room is exclusively used to store equipment and recordings; other than in an emergency or at the discretion of management, this room should not be used for any other function.



Power Outage

Nature's Remedy utilizes a separate Co-Generation power source that will provide electricity to all Security Systems in the event of a power outage within the grid. This system is designed to operate independently from the main power source. The burglar alarm and security equipment also utilize a battery backup; all electronically locked doors will remain locked and secure during a power interruption. Nature's Remedy will immediately notify appropriate law enforcement authorities and the CNB within twenty-four (24) hours in the event of a failure of any security alarm system due to loss of electrical power or mechanical malfunction that is expected to last longer than eight (8) hours.

Video Surveillance

Nature's Remedy's camera system records twenty-four (24) hours a day, seven (7) days a week, and allows for the export of both video and still image in an industry standard format. Both video and still photos can be archived in a proprietary format that ensures authentication and guarantees no alteration has taken place. All video recording will be available for a minimum of ninety (90) days, unless otherwise instructed by the CNB. Cameras record at a minimum of 3 frames per second, will immediately record at 15 frames per second when motion activity is detected. Cameras are equipped with IR Illuminators to maximize low light imagery, and lighting conditions will be appropriate for the area under surveillance. Every camera and recording will be accompanied with a date and time stamp that will be verified for proper synchronization during routine system audits, but at no time will the date and time stamp obstruct the recorded image. Nature's Remedy performs a daily camera audit, and a bi-weekly security system audit to ensure the system is in working order.

Video surveillance cameras are placed in all areas that may contain marijuana or marijuana products, all points of entry and exit, the perimeter of the building, and in all parking areas. Cameras are strategically placed so that any person entering or exiting a room can be clearly identified, and at no time can agents conceal themselves within a room that contains marijuana.

Redundant Notification Systems

Nature's Remedy will utilize four (4) CoGen Generators. Two that are 600kW (600,000 watt) generators, and two that are 1,800kW (4.8 million watt) generators, adding to a total of 4,000kW (4.8 million watt) within the facility. In the event that all four (4) generators fail, the facility will switch over to the grid. If there is a planned outage, the facility also has the option to bring a mobile generator on site. Cogeneration or combined cooling, heat and power (CCHP), is the process by which the heat produced by a cogeneration plant is used to generate chilled water for air conditioning. (An absorption chiller is linked to the combined heat and power (CHP) to provide this functionality.)

Internal Alarms

For the safety of all agents, Nature's Remedy has installed various wireless Panic Alarms throughout the facility; all directly connected to the Grafton Police and Fire Department. In addition, if an agent exits out of the numerous Emergency Exit doors, a Burglar Alarm will sound to notify Security that a secure door has been unlocked. This could lead to further review and inspection. The same situation will occur if an agent tries to access one of the Limited Access rooms within the facility without entering their individually selected pin. This alarm is directly connected to the Central Station who will then inform Management. If this alarm activates after hours the Grafton Police will be notified.

Security Audits

Nature's Remedy performs Security audits to both the camera system and the alarm system. Once a day, Nature's Remedy Security agents complete a camera audit, calculating the storage of the system. On a bi-monthly basis, Nature's Remedy will complete an internal security audit, confirming that all partitions of



the burglar alarm are in working order. Annually, Nature's Remedy will hire a third-party company to perform a full examination of all partitions within the burglar alarm. Any issues that arise during the audit will be reported to the commission within thirty (30) business days with a plan to mitigate the issue within ten (10) days.

External Theft/Robbery

Nature's Remedy has placed emphasis on providing excellent security measures in efforts to prevent and deter robberies, rather than apprehension. It is Nature's Remedy's policy that in the event of an external theft is to take place at the Cultivation and Manufacturing site, Security policies and procedures will be followed to pose the minimum risk to Nature's Remedy and its employees. Security Cameras and Panic Alarms with Police and Fire notification are in place in case of an emergency. In addition, no unauthorized visitors will be allowed to loiter on the premises, all Visitors must have a scheduled appointment, and must provide appointment information prior to entering the facility.

Storage and Limited Access Areas

Secure Storage Areas & Vaults

Nature's Remedy utilizes secure, Limited Access areas to store all products within the Grafton Cultivation and Manufacturing facility. The Vault is a Limited Access room that only authorized agents have access to, clearly marked as so, utilizing a "Limited Access" sign. This secure room is equipped with both a Keycard Reader and a Burglar Alarm Keypad, both need to be disarmed before any agent can enter. If an agent does enter without providing either their keycard or pin, the Burglar Alarm will activate, informing both Security and Management. In addition, multiple agents accessing an area under one Keycard swipe is strictly prohibited. The Vault is equipped with cameras covering all areas containing marijuana, and constructed with two layers of 5/8" drywall, sandwiching 3 1/2" metal studs with steel mesh on either side, and a heavy gage fire rated metal door. Temperature and humidity levels will be independently controlled and monitored to maintain optimum storage conditions. Any other storage location, outside of the Vault must be clearly labeled, and secured with a locking system only accessible to authorized agents. No product will be left within a room, unless it is securely locked away. No loose material on tables, etc. will be acceptable and will result in an investigation.

The Vault will store all finished marijuana and marijuana products, both packaged in bulk and individually packed. It is imperative that the Vault is clearly labeled and well organized to avoid any question that could lead to confusion or complications regarding inventory. The Vault racks are clearly broken down into two sections: Medical and Adult Use. Within these sections, products will be clearly labeled as to whether they have been tested, whether they are in testing, or whether they have already been tested. Any product package that has had testing completed should include testing results to the provided binder, with a reference number on the package itself. All product will be stored within plastic tote containers that can be securely locked or zip-tied shut. This will be imperative during transport. Waste will never be stored in the Vault; all waste material will be stored within the Waste Room to await disposal each evening.

Limited Access Entry

Nature's Remedy has clearly marked Limited Access areas as so, by utilizing "Limited Access" signage required per the CNB. Signage states: "Do Not Enter – Limited Access Area – Access Limited to Authorized Personnel Only", on signage a minimum of 12"x12", with lettering no smaller than one inch in height. There is a limited number of agents with access to Limited Access areas to limit risk of diversion, tampering or violating compliance. Limited Access areas are safeguarded with both Keycard Access Readers and Burglar Alarm Keypads, both need to be disarmed prior to entering a room, unless the alarm will activate, notifying Security and Management. Such violation will lead to further review.



All rooms within Nature's Remedy's facility are Limited Access, as they require a keycard to open. The access levels are set and maintained per keycards, that are individually assigned to employees when they start their employment with Nature's Remedy. Security is notified each time a keycard is swiped and approved and are alerted if a keycard is swiped and denied access, meaning the agent does not have the credentials to enter that space. In addition, security is informed when a door is forced open without valid permissions, or if a door is held open for longer than the allotted timeframe of 30 seconds. Nature's Remedy's facility encompasses three rooms that are to be considered high level Limited Access areas; these rooms are the Vault, the IT/Server Room and the Security Room.

Agent Badging and Training

Cannabis Control Commission: Agent Registrations

Nature's Remedy will register any and all employee, with an active role at the Grafton Cultivation and Manufacturing facility, as a Registered agent with the Cannabis Control Commission. Prior to submitting CNB registrations, the HR Manager will run a background check on the specific employee, and the Director of Compliance will verify if registration is permissible. Background screenings check for, iCORI, all Social Media Results, and at a minimum, but not limited to: past criminal convictions / drug-related offenses / concealed weapons permits / controlled substance registrations / professional license / drivers license information / federal criminal and civil actions / credit check / bankruptcies. After obtaining an acceptable background check, the Compliance department will work with the employee to complete the Agent Attestation form to ensure the employee has a clear and precise understanding of their job description and responsibilities within the operation. If an agent parts way from Nature's Remedy, for any reason, the Compliance department will complete a Surrender Agent Registration Application and submit it to the CNB within 24 hours, notifying the commission that the agent is no longer employed as an active member of the operation. CNB Cards include the following key information: Agent name / registration number / registration expiration date / the license name and number and description of the facility. It is pertinent this information is available to all on site; therefore, all agents must have their CNB Registration cards available and visible at all times. Agents are not permitted to bring this card off site, unless they are performing a specific job function. CNB Agent Registration information will be maintained and stored by the Compliance department and will be updated on an as needed basis, but at a minimum, on an annual basis.

Agent Keycard Access and Accountability

On an Agent's first day of work, they will be provided with an access keycard, that will grant access to all rooms where they have an essential operational role. This card information will be maintained and monitored by both Nature's Remedy's Security agents and the Compliance department and will be updated on an as needed basis. Keycard access is designated by user and by room, allowing completely customizable access controls. Security is notified each time an agent successfully swipes their access card and will be alerted each time an agent is denied access because they do not have the required credentials to access that space. Nature's Remedy has a strict policy against piggybacking. Each employee is required to swipe their individual access card to enter a room, no exceptions. At the completion of an agent's employment with Nature's Remedy, the Compliance Manager will ensure that all access has been removed from the agent's individual keycard, so no further access can be granted.

Agent Training

Nature's Remedy strongly supports the safety and efficiency within the Grafton Cultivation and Manufacturing facility. All employees are required to complete both, safety training, regarding: hazards, the overall well-being of employees and confidentiality, as well as training on the specific job; employees must be trained on all equipment/materials prior to starting any operational task. Agents will also be



involved in a new hire orientation, where they will review the Employee Handbook and any relevant Policies and Procedures/Standard Operating Procedures. Security agents will train agents on general safety and compliance within the facility and will heavily monitor this activity for the orientation period of the employment. Employees will receive both general safety training, as well as specific trainings, at a minimum annually, or on an as needed basis.

Incident Reporting

If a reportable security incident occurs, Nature's Remedy will provide notice to the CNB and applicable law enforcement within twenty-four (24) hours. Additionally, a formal incident report and plan of correction will be submitted to the CNB within ten (10) calendar days. Incident reports are made available by Nature's Remedy management. Agents must include all required information as well as any additional supportive information pertinent to the situation at hand on the provided incident report.

Notification documentation shall be submitted for the following incident occurrences: discovery of discrepancy / diversion, theft or loss of marijuana product / any criminal action pertaining to Nature's Remedy's facility or property / any suspicious act involving the sale, cultivation, distribution, processing or production of marijuana / unauthorized destruction of marijuana / any loss or unauthorized alteration of records related to marijuana / an alarm activation or other event that requires a response by public safety personnel / the failure of any security alarm due to a loss of electrical power or mechanical malfunction that is expected to last more than eight hours or more.

All non-reportable incident records will be store with both the Compliance Manager and HR Manager within a Limited Access location, both on site and digitally.

All documentation pertaining to an incident will be maintained for one (1) year at a minimum, or for the duration of an open investigation, whichever is longer.

Inventory Plan

Overview

Nature's Remedy's Inventory Specialist will provide oversight of the inventory control system, supervising agents to ensure that all daily tasks are completed accurately and efficiently, conducting inventory counts, physically moving inventory, and tracking and recording inventory movements within the seed-to-sale tracking system.

Inventory Tracking

Nature's Remedy utilizes two seed-to-sale tracking systems. The use of the state required system, METRC, will be used by management to ensure all records are being transferred correctly, and to make any transfer between licenses. Agents performing daily tasks will be accustomed to using Leaf Logix, a secondary seed-to-sale tracking system. Leaf Logix has many user permissions that can be selected on a per agent basis, really customizing the experience the agent has with the system. Some agents will have full access to monitor inventory, and some will have minimal access that can only view existing inventory, without the ability to alter it. Each agent will have an individually assigned username that will act as a chain of custody, tracking each time an agent handles marijuana or marijuana product. Each product will have a specific METRC tag number that will accompany it through its lifecycle; showing every transfer, modification, sale, etc. METRC will not only record the plants lifecycle and agent interaction, but it will include the date and time stamp for full transparency.

Inventory Control System and Procedures

METRC will be used to track all strains, seeds, clones, plants, and products and will be used to verify product identification and weight measurements within the Grafton Cultivation and Manufacturing facility. Seeds will be counted and inventoried into the tracking system for each strain and stored in the Vault until they are scheduled to enter production. Once seeds or clones enter production, and are planted into the propagation room, a Cultivation agent will create Immature Plants in the system; including the Strain / Type / Room / Plants / Group Name / Group Date, information that will live with the plant until the destruction or sale of the product. A plant will stay in the Propagation Room, in the Immature Plant stage, until it is either eight (8) inches tall or placed in a container larger than two (2) inches wide. *When changing a plant stage, you must always change the room information as well, as the two are corresponding.* Therefore, when moving a plant from the Immature Plant stage into the Veg stage within the tracking system, you must also confirm that the physical plant has been transferred as well; and vice versa. Once the plant enters the Veg State, Nature's Remedy will apply a METRC tag for the first time; apply a METRC is not required until the Veg State of production. This METRC tag will then live with the plant all the way until it is processed and trimmed, but even then, a package tag can be tracked back to the original seed inventory planted. The plant will stay in the Veg Stage until, either the Cultivation department decides they would like to send it to Flower, or when the light cycle is altered to, twelve (12) hours on and twelve (12) hours off. The plant will then live in the Flower Room, until it has completed its lifecycle and can be cut down to begin the drying process. Per state requirements, Nature's Remedy will cut the plant at its stem, and dry and weigh the entire plant prior to and after the drying stage. Once the chopped plant has efficiently completed the drying process, it will be transferred into the Trim Room, where it will be hand trimmed by the Post-Harvest Production team. After the batch in its entirety has been trimmed, the raw material will then be packaged accordingly within the Grafton facility, or packaged and sold as Bulk material in a wholesale situation.

On a regular basis, or as needed, designated agents will conduct an inventory of all cultivation rooms, verifying the physical inventory coincides with what METRC displays; as all information within METRC is pulled directly from Leaf Logix.

Inventory Records

The record of each inventory will include at a minimum: the date and time, a summary of the findings and the names, signatures and titles of the agents that conducted the inventory. Nature's Remedy will use both METRC and Leaf Logix to guarantee real time inventory is maintained. All written records will be immediately transcribed into digital form and will be stored both on site within a Limited Access location, as well as on a secure backup server. If an incident occurs regarding inventory, the CNB will be notified within twenty-four (24) hours and will submit a plan of correction within ten (10) days, after an investigation occurs.

Loss Prevention

Overview

Nature's Remedy utilizes two primary loss prevention methods that will assist in assuring there are no shortages regarding inventory management; a seed-to-sale tracking system, as well as strict security measures and protocols. The following topics are to be included in Nature's Remedy's Loss Prevention Procedure: Seed to Sale Tracking, Security Measures and Protocols, Loss Prevention and Incident Reporting, Internal Agent Theft/Diversion, Traits or Indications of Agent Theft, Preventing



Diversion/Theft, External Robbery, Preventing Errors, Inventory Documentation and Procedures, Shipping and Receiving Documentation

Procedures

Seed to Sale Tracking System

All inventory and day to day operations are monitored and tracked by the state approved vendor, METRC, providing seed-to-sale tracking of all marijuana and marijuana products. Most agents will have minimal preferences and will only have the ability to alter items which they have been granted approval to view. This platform requires each agent to have their own individual username, clearly identifying agents' activities within the system, providing accountability. This approach makes it extremely simple to set specific permissions, on an employee basis. Account information is confidential and is not to be shared with other team members. If there is a discrepancy or adjustment made regarding inventory, the management team will be made aware of the incident, and it will be investigated properly to ensure there was no foul play.

Every time marijuana or marijuana products are altered, transferred, transported, destroyed or wasted; agents are responsible for completing the required log correlating to the procedure. Logs are to be submitted to the Inventory Specialist, who is responsible for ensuring the information provided is complete and accurate, then digitally logging the process into the METRC system. Having one point of entry will reduce entry errors in the system and will potentially alleviate any risk of double entry.

Security Measures and Protocols

Nature's Remedy's Cultivation and Product Manufacturing site is equipped with over 100 cameras, keycards readers on every door and a fully trained Security team, all in place to monitor agents and visitors, procedures, and operation processes. Nature's Remedy has also developed a set of strict security procedures within the Grafton Cultivation and Manufacturing facility to assist in the safeguarding of marijuana and marijuana products.

Loss Prevention and Incident Reporting

If you personally view an incident of agent theft, take the steps to prevent a loss and immediately notify your supervisor, the Security Supervisor, Compliance and Human Resources, when applicable. The incident will be investigated in full, and in most situations, the agent should be immediately suspended without pay, pending the completion of the investigation. Agents should never directly confront an agent unless you have actually witnessed a theft, and you are absolutely certain that the agent has stolen product in his/her possession.

When confronted with an incident of theft the following actions should be taken:

- Immediately contact your Supervisor, the Security Supervisor and Compliance
- When advised, place the agent on unpaid suspension pending the results of further investigation
- Collect his/her Agent Registration Card, Access Keycard, FOB, Etc..
- Escort the Agent out of the facility
- Ask the Agent not to discuss the situation with other agents or to return to the facility until notified
- Complete a Diversion/Theft Incident Report and forward to Management, who will then submit all pertaining information to the Commission.

Contact Management when discovering the following:

- Suspicions of Agent diversion and/or theft, or if an Agent diversion and/or theft has been witnessed
- Serious accidents involving Agents or Visitors



- Criminal act to Nature's Remedy's facility or property
- Internal and External Alarms
- Any Security measures have been tampered with or altered
- External fraud suspicion
- Any suspicious act involving the sale, cultivation, distribution, processing or production of marijuana
- Unauthorized destruction of marijuana
- Any loss or unauthorized alteration of records related to marijuana
- The failure of any security alarm due to a loss of electrical power or mechanical malfunction

If a reportable security incident occurs, Nature's Remedy will provide notice to the CNB and applicable law enforcement within twenty-four (24) hours. Additionally, a formal incident report and plan of correction will be submitted to the CNB within ten (10) calendar days. Incident reports are made available by Nature's Remedy management. Agents must include all required information as well as any additional supportive information pertinent to the situation at hand on the provided incident report.

Internal Agent Diversion / Theft

Trust is imperative when building a team, so we take the position that our agents are honest. However, we do recognize that some agents may partake in diversion and/or theft. Reasons vary from frustrations, greed and revenge, to simply taking advantage of an opportunity. This can be an uncomfortable position to be in, but one that our management team must be content with in order to prevent unnecessary losses. Nature's Remedy employees and agents must not partake in any fraud against NR, or any other entity. All agents should be alert to situations that could constitute criminal wrongdoing. For example, when actions or behavior become suspicious and indicate fraudulent activity, associates have a responsibility to identify and report the information to their supervisor. Any Nature's Remedy agent who has knowledge or information regarding the misconduct of another agent, is expected to promptly report the relevant facts to their Supervisor, Security agents, Compliance and Human Resources, when applicable.

Traits or Indications of Agent Theft

- Inconsistencies when an agent explains discrepancies or errors
- Temper or insubordinate behavior
- Behaviors indicating possible drug or alcohol use
- Borrowing from other Agents
- Admission of theft from other employment
- Complaints about hours, pay or supervisors
- Repeated comments concerning financial problems
- Secretive conversations in person or over the phone
- Using another Agent's user ID and/or password

Agent Theft - Methods

- Creating fraudulent records
- Creating fraudulent voids or adjustments
- Theft of Cash
- Shipping out product with no manifest
- Placing product in the waste to be retrieved at a later date/time
- Concealing products on their person or in a bag

Preventing Internal Agent Theft/Diversion

- Hire quality Agents – conduct effective interviewing and screening
- Complete Reference Checks
- Complete Background Checks, including: Full Report, Social Media and iCORI



- Provide solid training and follow up
- Provide uniforms with no pockets
- Follow all company policies and procedures
- Vault access requires a keypad code for entry, directly connect to the burglar system
- Keep an organized vault, eliminating the ability for dishonest agents to hide or divert product
- When needed, allow Security to perform purse and bag checks each time an agent leaves the facility. However, checks must be visual only, private property will not be handled
- Agents must store personal belongings in their assigned locker
- Agents can never clock in or out for another employee
- Under no circumstance can an agent use a user ID and password other than their own
- Security will monitor employee actions with the use of keycard readers and cameras
- Before walking away from tracking software, the station must be secured to prevent any unauthorized use

External Theft/Robbery

Nature's Remedy has placed emphasis on providing excellent security measures in efforts to prevent and deter robberies, rather than apprehension. It is Nature's Remedy's policy that in the event of an external theft is to take place at the Cultivation and Manufacturing site, Security policies and procedures will be followed to pose the minimum risk to Nature's Remedy and its employees. Security Cameras and Panic Alarms with Police and Fire notification are in place in case of an emergency. In addition, no unauthorized visitors will be allowed to loiter on the premises, all Visitors must have a scheduled appointment, and must provide appointment information prior to entering the facility.

Preventing Errors

Shortage can also occur through unintentional errors in handling and recording of documentation relating to inventory.

In order to prevent unnecessary errors, ensure the following:

- Agents follow procedures for counting and storage
- Following all METRC procedures, including: Plantings, Transplants, Defoliation, Culls, Waste, Packages, Etc.
- Ensure manifests for all transports are properly recorded, documented and stored
- Limiting the number of agents with access to the Seed-to-Sale tracking system. All movements will be recorded on a physical paper log then submitted to the Inventory Specialist, who will then record the information into METRC.

Product Testing

Nature's Remedy of Massachusetts, Inc. will sample and test each cannabis harvest and production batch. Samples will be collected in ready-to-use condition. Ready-to-use means ready for packaging or post-packaging. For other production batches, ready-to-use means ready for use as an intermediate or ingredient in making other products.

A sample is more likely to represent the harvest or production batch if the material is homogenous. Samples will be collected in an as homogenous state as possible. Mixing or other homogenization steps will be taken to help to homogenize the product before sample collection. Frequency of sample testing will be influenced based on whether a harvest/production batch can be well homogenized or not, as well as by the size of the harvest/production batch.



For batches that cannot be homogenized or are of unknown homogeneity:

Product will be mixed to degree possible, samples will be withdrawn from different areas (such as lower, middle, and upper portions of product), and subsamples will be composited, if possible.

Sample frequency based on batch size:

- $\leq 1\text{kg}$ batch - 3 subsamples
- 1-5kg batch - 5 subsamples
- $\geq 5\text{kg}$ batch - 10 subsamples

For batches that can be homogenized or assumed to be well mixed or homogenous:

Product will be well mixed and a sufficient amount will be taken from a production batch of any mass.

Sample frequency based on batch size:

- Any batch mass - ≥ 1 sample

Flower

Environmental media must be tested.

Product testing samples will be taken from each harvest batch.

Finished plant material is tested instead of living or freshly harvested plants because drying and trimming may affect the concentrations of contaminants and because fungal/bacterial growth may occur during finishing.

A production batch of finished plant material may be dispensed to patients or used to make other cannabis products if no individual pesticide or plant growth regulator is detected above 10ppb. If a batch of finished plant material fails to meet a pesticide residue and plant growth regulator limit it cannot be dispensed to patients or used to derive other products. The batch may be retested once, if it fails, it must be destroyed.

All Testing Conducted by MCR Labs Prior to Finished Product Being Dispensed: Cannabinoid Profile; Terpene Profile; Pesticides; Microbiological; Mycotoxin; Heavy Metals

All Harvest/Production Batches: (before it may be processed further)

Pesticides and Plant Growth Regulators (required); Cannabinoid Profile (optional); Terpene Profile (optional)

Production Batches to be Dispensed as Finished Product:

Metals; Microbiological; Mycotoxin; Cannabinoid Profile; Terpene Profile

Test Type:	Minimum Required Weight:
Full Testing Panel (CN; TP; HM; MB; MY; PS)	5.0g
CN - Cannabinoid Profile	0.3g
TP - Terpene Profile	0.2g
HM - Heavy Metals	0.3g
MB - Microbiological	1.0g



MY - Mycotoxin	0.5g
PS – Pesticide	1.0g

Concentrates

Concentrates are products of extraction where a solvent was utilized (i.e. CO2 Oil). Therefore, analysis for residual solvents is required for cannabis concentrates (or resins) where solvents have been used in the production process. If a concentrate or resin exceeds the residual solvent requirements, it cannot be dispensed to patients. It may be processed and retested. If it passes the retest, it may be dispensed to patients.

If the finished plant material fails to meet a testing requirement (excluding pesticides), but the finished plant material is not dispensed to a patient, then it may be used to derive resins and concentrates. These resins and concentrates may be dispensed as long as they meet the respective concentration limit.

All Testing Conducted by MCR Labs Prior to Finished Product Being Dispensed: Cannabinoid Profile; Terpene Profile; Pesticides; Residual Solvent; Microbiological; Mycotoxin; Heavy Metals

All Production Batches: (before it may be processed further)

Residual Solvents (required); Heavy Metals (required); Cannabinoid Profile (optional); Terpene Profile (optional)

Production Batches to be Dispensed as Finished Product:

Microbiological; Mycotoxin; Cannabinoid Profile; Terpene Profile

Test Type:	Minimum Required Weight:
Full Testing Panel (CN; TP; HM; MB; MY; VC)	4.0g
CN - Cannabinoid Profile	0.2g
TP - Terpene Profile	0.2g
HM - Heavy Metals	0.3g
MB - Microbiological	1.0g
MY - Mycotoxin	0.5g
PS – Pesticide (Not Required for Extracts)	1.1g
VC - Residual Solvents	0.5g

Resins

Resins are products of extraction that did not utilize a solvent (i.e. Bubble Hash). Therefore resins are not required to test for residual solvents, as long as there is documentation that no solvents were used in the oil production process.



All Testing Conducted by MCR Labs Prior to Finished Product Being Dispensed: Cannabinoid Profile; Terpene Profile; Pesticides; Microbiological; Mycotoxin; Heavy Metals

All Production Batches: (before it may be processed further)

Residual Solvents (only required if used); Heavy Metals (required); Cannabinoid Profile (optional); Terpene Profile (optional)

Production Batches to be Dispensed as Finished Product:

Microbiological; Mycotoxin; Cannabinoid Profile; Terpene Profile

Test Type:	Minimum Required Weight:
Full Testing Panel (CN; TP; HM; MB; MY)	3.5g
CN - Cannabinoid Profile	0.2g
TP - Terpene Profile	0.2g
HM - Heavy Metals	0.3g
MB - Microbiological	1.0g
MY - Mycotoxin	0.5g
PS – Pesticide (Not Required for Extracts)	1.1g
VC - Residual Solvents	N/A

MIPs

All MIP production batches must be tested for biological contaminants (bacteria, fungi, and mycotoxins). Production batches must be discarded and not dispensed to patients if any biological contaminant limit is exceeded.

MIPS may be made only with finished cannabis products that have passed applicable metals, pesticide, and solvent testing requirements. For this reason, testing MIPS for metal, pesticide, and solvents contaminants is not required.

If production batches of individually packaged MIPS are sampled, multiple packaged products should be sampled such that they are representative of the production batch size.

Terpene screening for solid MIPS is not available at MCR Labs. Only viscous MIPS can be tested for terpenes.

All Testing Conducted by MCR Labs Prior to Finished Product Being Dispensed: Cannabinoid Profile; Terpene Profile (only available for viscous edibles); Microbiological; Mycotoxin

All Production Batches: (Before Dispensed as Finished Product)

Cannabinoid Profile; Terpene Profile (only if viscous); Microbiological; Mycotoxin

Test Type:	Minimum Required Weight:
Full Testing Panel: (CN; MB; MY)	1 serving/dose
CN - Cannabinoid Profile	1.0g
TP – Terpene Profile	0.2g (viscous MIPs only)
MB – Microbiological	1.0g
MY – Mycotoxins	1.0g

Waste Procedure

Overview

All waste, including waste composed of or containing finished cannabis and MIPs, will be stored, secured, and managed in accordance with applicable state and local statutes, ordinances, and regulations. Cultivation cannabis waste will be collected and logged throughout the day, during each stage of the production process. Each stage encompasses its own set of requirements that must be completed and logged to ensure compliance. All waste will be managed via tracking software that will trace the lifecycle of each plant, from seed to destruction, and everything in between. Although Nature's Remedy will record all waste information into tracking software, agents are still required to complete chain of custody logs, tracking their individual waste, up until the disposal of facility waste. Waste Disposal logs will be maintained for a minimum of three (3) years, unless otherwise instructed by the commission. Logs will be stored on site within a Limited Access location, as well as stored digitally within a secure backup server.

Procedures

Cannabis Waste Storage

Nature's Remedy will have Plant Waste receptacles sufficiently placed around the facility; all plant waste should be placed within a "Plant Waste" specific vessel, no exceptions. The process to dispose of any and all plant waste, within the Grafton Cultivation and Manufacturing facility, will take place at a minimum once a day, or on an as needed basis. Unless there is an emergency situation, waste will always be destroyed at the end of each business day. If for any reason, plant waste is stored overnight, it will be stored in the locked Plant Waste Disposal room, in tamper proof containment. The Waste Disposal room will only hold cannabis and cannabis product waste.

Logging Process

The process to dispose of any and all plant waste, within the Grafton Cultivation and Manufacturing facility, will take place at a minimum once a day, or on an as needed basis. The disposal process will always include two registered agents, trained on the equipment as well as the procedure. The first step to the disposal procedure, is to complete the Waste Disposal Log. Logging requirements are as follows:

1. Place the wasted plant material in the Plant Waste receptacle and complete the Waste Log in its entirety. Please ensure you are completing the correct log: one log is Propagation specific and the other is Vegetative and Flower specific. Please see article 1 and 2.



- a. **For Defoliation:** If you are defoliating a room, and not culling any plantings, the following will need to be completed.
 - i. Room Location, Product Weight Wasted, Inert Material Used, Inert Material Weight, the Reason for Waste, the Disposal Date/Time, along with names and signatures for the two agents that physically waste the cannabis material.
- b. **For Culling:** If you are culling a plant or planting, the following will need to be completed.
 - i. METRC Tag Number, Room Location, Group/Batch Number, Qty Wasted, Product Weight Wasted, Inert Material Weight, Inert Material, the Reason for Waste, the Disposal Date/Time, along with names and signatures for the two agents that physically waste the cannabis material.

It is imperative that all Waste Disposal logs contain names and signatures of the two agents that performed the waste process, stating that they witnessed the disposal, and that all information provided is accurate, and to the best of their knowledge. The Inventory Specialist will not accept any incomplete Waste Logs.

Rendering Unusable

The second step that must be completed, is to render the cannabis or cannabis product unusable, using a 1:1 ratio. To accomplish this, Nature's Remedy is equipped with an industrial grinder; a piece of equipment with the power to reduce any material into dust. The Grafton Cultivation and Manufacturing facility will be stocked with an abundance of Rockwool and Cardboard; so that, or a like product, will be used to mix the cannabis or cannabis product, rendering it unusable. After the cannabis or cannabis product is combined with inert material, it will be disposed of in a compact dumpster, serviced by Lawrence Waste Company, who will transport the waste to a solid waste management facility holding a valid permit to incinerate the material.

Lockout/Tagout

In order to ensure safety compliance is met, the Waste Disposal grinder is locked out at all times while not in use. In order to access this piece of equipment, one Agent must retrieve the access key from Security. Upon this interaction, Security will request the names of the two agents performing the disposal process, recording all provided information into the key sign-out log. Nature's Remedy's Security department will also be responsible for monitoring the entire waste disposal process via the use of the camera system, observing overall safety and compliance.

Liquid Waste

Nature's Remedy has implemented a procedure for Cannabis Waste in the liquid form; each agent is responsible for tracking and managing waste produced while performing job functions. There are liquid waste receptacles in all required areas within the facility. Including, but not limited to: the Extraction Room, the Distillation and Analytics Lab, the Kitchen and the Packaging Room. Each agent is responsible for placing the liquid waste within an appropriate receptacle, completing the Agent Waste log, and submitting the disposal log to the Inventory Specialist. Nature's Remedy will render the liquid plant waste as unusable; mixing it with an inert liquid or solid material. Once rendered unusable, Clean Harbors will pick up the containment and properly dispose of it within a facility holding a valid permit.

Non-Plant Material Waste

Nature's Remedy will store all non-plant material in a secure general trash dumpster, separate from the Cannabis specific dumpster.



METRC Logging

Once two registered agents have completed the Waste Disposal log and performed the Waste Disposal process, the completed log will be submitted to the Inventory Specialist. The Inventory Specialist will confirm that all provided information is accurate and complete, and once confirmed, enter all information into the METRC system.

Records

Nature's Remedy agents will complete a Waste Disposal Log anytime cannabis products are disposed of at the Grafton facility. The waste disposal log includes, at a minimum: date and time, METRC ID information, product description, product code, the inert material the cannabis product was mixed with, the product net weight, the product quantity, the inert material weight, the total disposal weight, the agent information for the two agents present during the destruction, along with their signatures of endorsement that all information provided is accurate.

Waste Disposal logs will be maintained for a minimum of three (3) years, unless otherwise instructed by the commission. Logs will be stored on site within a Limited Access location, as well as stored digitally within a secure backup server.

Transportation Plan

Overview

Only designated Nature's Remedy agents will transport marijuana and marijuana products over the course of business operations. All transports must be executed within the Nature's Remedy transportation van, completed by two trained Nature's Remedy agents. It is pertinent that Nature's Remedy agents have their agent registration cards available and visible at all times while transporting marijuana or marijuana products. One agent must stay within the vehicle at all times while there is product within.

Nature's Remedy transportation van incorporates a cooling/heating unit and utilizes a secondary locking system, with reinforced steel plates that will obstruct all door access into the cargo area, equipped with commercial locks. Within the secure unit, all marijuana products will be transported in locking storage containers accompanied with tamper seals to clearly identify if the product has been tampered with. In addition, all bins will be clearly labeled with all shipping information, including the shipping manifest and METRC tags. It is Nature's Remedy's policy to be as inconspicuous as possible when delivering product, and to avoid drawing attention to any vehicle for the safety of all agents involved in the process. The transportation vehicle will be equipped with a properly functioning GPS unit, a live camera focused on the cargo itself, an electronic log, a two-way intercom system and a panic button.

Procedures

Transport Procedure

Together, the Inventory Specialist, Vault Manager and the Transportation Coordinator will arrange the order, pack the shipment, and complete a Shipping Manifest, including all pertinent and required information. The shipment must be verified and signed off on by a minimum of three agents, preferably, the Vault Manager, Inventory Specialist and Transportation Coordinator – or equivalents. Once the inventory qty's and shipment information have been completed and approved, three copies of the manifest will be printed. One will stay with the originating location, one will be affixed to the shipment itself and one will be transported with the drivers performing the transport. In addition, a copy of the METRC manifest will be made available to the destination location up to twenty-four (24) hours in advance. The shipping manifest contains the name, address, contact and registration information for both licensees, as well as all details related to the purchase. This includes, but is not limited to: product sku's, qty's, weights, costs, terms and any other items related to the purchase.



Prior to Nature's Remedy loading the shipment at the originating license location, the product will be weighed, inventoried, and accounted for on video. There will be two agents required to sign off on each shipment prior to loading into the vehicle; the inventory agent and one of the transporting agents. The receiving licensee is responsible for executing the same procedure within 8 hours of delivery - but preferably at the time of delivery as they need to complete the confirmation of receipt and provide the completed form back to Nature's Remedy.

Communication and Logging

An agent stationed at the originating license location is responsible for monitoring the transportation at all times. This includes, tracking the vehicle via GPS, guaranteeing communication is met every 30 minutes at a minimum, and confirming no issues arise while in progress. If any situations do arise or the vehicle makes any planned or unplanned stop, the transportation agents are responsible for keeping a detailed log reporting as much information as possible. At a minimum, Transportation Logs must include the following: the names and signatures of the two agents transporting the shipment and any actions that may take place during the transit, including but not limited to: communication, person entering or exiting the vehicle, cannabis or cannabis product being loaded or unloaded, etc. Each action must include the specific time, provides a space for optional notes. The log also includes, the departure time and mileage as well as the arrival time and mileage at any location visited while in transit. Routes will be randomized, only available to the agents monitoring the transport.

Vehicle and Storage Information

Shipping information must be clearly marked and displayed on the outside of all transport containers. All transport containers are opaque, therefore, at no time will marijuana or marijuana products be visible to the public, whether during transport or unloading the vehicle at either location.

Before the transportation vehicle departs the originating licensee, two agents must conduct a comprehensive exam of the vehicle. This exam consists of assuring the following is in working order: the GPS system, the communication system, the cargo camera, the electronic log and the panic alarm. The vehicle is not authorized to proceed until the inspection has been fully completed and signed off on. Transportation agents should also record the vehicles mileage prior to departure and ensure the gas tank is full prior to loading any product into the vehicle.

Records

Nature's Remedy agents will complete a Shipping Manifest anytime marijuana products are transported from one license to another. The Shipping Manifest includes, at a minimum: license information for both licensees / the METRC ID / the batch ID / the product description / the product code / the storage code / the product net weight / the total weight / the verification of both the net and total weight / information regarding the agent that prepared the manifest / the agent that verified the manifest / information for the two agents performing the transport / information concerning the vehicle, prior to and at the duration of the transportation. The receiving license must complete the Shipping Manifest within 8 hours of delivery, including: the receiving agent information and signature, countersigning the information provided was correct and there are not any issues pertaining to inventory.

Nature's Remedy's transporting agents are required to document any unusual activity pertaining to weight or inventory and report it to the commission and appropriate law enforcement within twenty-four (24) hours. Agents will also report any vehicle accidents, diversions, losses, or other reportable incidents to the commission within twenty-four (24) hours of the incident. All documentation will be stored within a Limited Access location as well as digitally stored on a secured backup server.

7. Traffic Study:

**TRAFFIC IMPACT ANALYSIS FOR THE
NATURE'S REMEDY
GRAFTON, MASSACHUSETTS**

**SUBMITTED TO:
HERITAGE DESIGN GROUP
ONE MAIN STREET
WHITINSVILLE, MA 01588**

**SUBMITTED BY:
PARE CORPORATION
8 BLACKSTONE VALLEY PLACE
LINCOLN, RI 02865**

JUNE 2017



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INTRODUCTION

The following represents the traffic study completed for the construction of a Nature's Remedy medicinal marijuana cultivation and distribution facility to be located at 8 Millennium Drive in Grafton, Massachusetts. The proposed facility is expected to employ 22 people for cultivation, 11 people in each of two shifts, and 5 employees for the dispensary.

The proposed facility will have one driveway connecting to the existing circle at the end of Millennium Drive, which currently serves a single driveway entrance to Primary Color, Inc. Millennium Drive stems off the west side of Centennial Drive, which connects to Centech Boulevard/Pine Street. This road network makes up a large portion of Centech Park, which consists of industrial and commercial uses. The site for the proposed facility is approximately 10.7 acres in size.

Though hours of operation have not yet been established for the facility, it is assumed, conservatively, that all first shift employees will arrive during the morning peak hour of traffic. Additionally, it is assumed that all first shift employees will depart and all second shift employees arrive during the afternoon peak hour of traffic.

Presented within are existing conditions in the vicinity of the project site, a safety analysis of the study area, an analysis of the traffic based on existing, future 2024 no-build and future 2024 build conditions, and proposed mitigation measures and/or recommendations, as necessary. A locus map of the study area is provided in Figure 1 and the proposed site layout is shown in Figure 2.

The study area includes Centech Boulevard/Pine Street from its intersection with Centennial Drive to its intersection with Westboro Road (Route 30) and Westboro Road from its intersection with Pine Street to its intersection with Institute Road.

DATA COLLECTION

Manual turning movement counts (MTMCs) were completed on June 14, 2017 from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m. at the following intersections:

- Centech Boulevard/Pine Street at Centennial Drive
- Westboro Road at Pine Street

An automated traffic recorder count (ATR) was also taken over a 48-hour period on Westboro Road (Route 30) in the vicinity of Institute Road to establish the daily distribution in the area.

Crash data for the roadway network in the vicinity of the project site was extracted from the MassDOT crash portal. This data encompasses the most recent three-year period available, from January 2012 through December 2014.

A field review of the study area was conducted, with geometric measurements and other field observations recorded at the significant intersections in the vicinity of the project site. The information obtained was used in the analysis of the study area intersections.

The Town of Grafton Planning Department was contacted to determine if there are currently any developments proposed within the Town whose trip generation information should be included in the facility study. The Town provided a traffic impact assessment (TIA) for a proposed development along Institute Road.





● = Study Intersection



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Date: June 2017

Figure 1
Locus Map
Nature's Remedy
Grafton, MA

EXISTING ROADWAY CONDITIONS

The study area for the proposed medicinal marijuana facility is defined as the significant roadways and intersections in the vicinity of the site that may be impacted by the construction of the new facility. Listed below are the roadways and intersections included in the study area.

Study Area Roadways:

1. Millennium Drive/Centennial Drive
2. Centech Boulevard/Pine Street from Centennial Drive to Westboro Road (Route 30)
3. Westboro Road (Route 30) from Pine Street to Institute Road

Study Area Intersections:

1. Centech Boulevard/Pine Street at Centennial Drive
2. Westboro Road (Route 30) at Pine Street

Millennium Drive/Centennial Drive

Millennium Drive and Centennial Drive, which provide access to the proposed site, are classified as local roads under Town jurisdiction. Millennium Drive has an approximate curb-to-curb width of 32 feet with no lane delineation. A 4-foot wide asphalt sidewalk and sparse light poles run along the east side of the roadway. The circle at the southern end of Millennium Drive has a curb-to-curb width of 30 feet and a centerline radius of approximately 35 feet, which restricts vehicle speeds. Centennial Drive has an approximate curb-to-curb width of 20 feet per direction, separated by a 6-foot wide grassed median. A 4-foot wide asphalt sidewalk runs along the south side of Centennial Drive.

Centech Boulevard/Pine Street

Centech Boulevard/Pine Street runs in the north/south direction, is classified as an urban collector and is under Town jurisdiction. Within the study area, Centech Boulevard/Pine Street has an approximate 27-foot curb-to-curb width with sidewalk located on the west side of the street. The roadway consists of one 12.5-foot wide travel lane in each direction with 1-foot wide shoulders. The study area limit of Centech Boulevard/Pine Street does not have a posted speed limit, and therefore a de facto speed limit of 30 miles per hour is assumed. Land use along Centech Boulevard is generally commercial and institutional.

Westboro Road

Westboro Road runs in the east/west direction, is classified as an urban minor arterial and is under Town jurisdiction. Within the study area, Westboro Road has an approximate 30-foot edge-to-edge width with sidewalk located on the north side of the street starting at the intersection with Pine Street and continuing eastward. The roadway consists of one 12-foot wide travel lane in each direction with 3-foot wide shoulders. The study area limits of Westboro Road fall within a 30 mile per hour posted speed limit zone. Land use along Westboro Road is generally residential, with a few scattered commercial uses.

Centech Boulevard/Pine Street at Centennial Drive

The intersection of Centech Boulevard/Pine Street and Centennial Drive operates as a three-legged unsignalized intersection. Centech Boulevard forms the north leg, Pine Street forms the south leg and Centennial Drive forms the west leg of the intersection. Centech Boulevard and



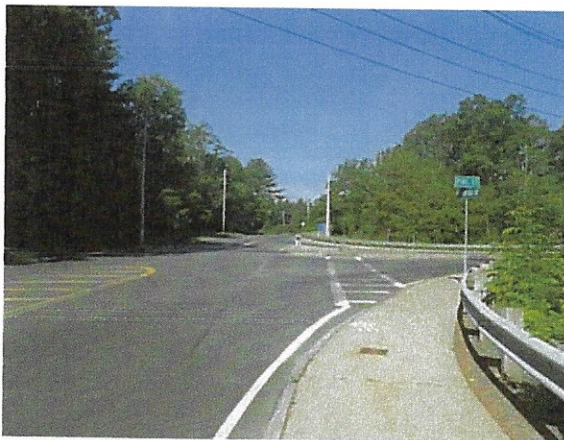


Pine Street operate freely while Centennial Drive is under stop control. There is access from the east side of the intersection to a government facility; however it is gated off and designated for authorized vehicles only. No vehicles were observed using the drive during the field review or traffic counts.

one 12.5-foot travel lane in each direction with 1-foot wide shoulders. The western leg along Centennial Drive is 20 feet wide in each direction with no lane delineation, separated by a 6-foot wide grassed median. Sidewalks are present on the west side of Centech Boulevard/Pine Street and along the south side of Centennial Drive. However, there is no crosswalk present at the intersection.

Westboro Road (Route 30) at Pine Street

The intersection of Pine Street and Westboro Road (Route 30) forms a three-legged unsignalized intersection. Pine Street forms the north leg of the intersection and Westboro Road forms the east and west legs. Both approaches along Westboro Road operate freely while Pine Street is under stop control for its left-turn movement and yield control for its channelized right-turn movement.



At the intersection, Pine Street consists of one 34-foot travel lane in the northbound direction with 1-foot shoulders, a 13-foot wide southbound left-turn lane with 1-foot shoulders, and an 18-foot wide channelized southbound right-turn lane with 1-foot shoulders. The western leg of Westboro Road (Route 30) consists of a 12-foot wide travel lane in each direction with 2-foot shoulders, and a 12-foot wide eastbound left-turn lane. The eastern leg of Westboro Road (Route 30) consists of a 12-foot wide travel lane in each direction with 2-foot shoulders, separated by a 12-foot wide striped gore. Sidewalks are present on the north side of Westboro Road from just west of Pine Street continuing eastward, and along the west side of Pine Street. A crosswalk is present across the Pine Street approach to the intersection.

EXISTING OBSERVATIONS

As part of the field review process, traffic observations were conducted during the site visit on the morning of June 15, 2017. Below is a summary of these observations.

- The proposed site is close to the Grafton MBTA station and the development could not construct driveway access to Westboro Road (Route 30) without crossing the MBTA tracks.

-
- A train horn sounded and passed at 7:40 a.m.; a westbound train to Worcester stopped at the station at 8:26 a.m. and two passengers departed and walked to Centech Park; and an eastbound train to Boston stopped at the station at 9:04 a.m.
 - No cars were observed entering Millennium Drive between 7:25 a.m. and 7:45 a.m. At 7:45 a.m., one car entered Primary Colors along Millennium Drive.
 - Traffic along Centech Boulevard/Pine Street increased around 7:50 a.m. A few cars entered Centennial Drive at this time, mostly destined for Idexx Laboratories.
 - Vehicles along Centech Boulevard/Pine Street appeared to be speeding.
 - One pedestrian was observed walking along the west side of Centech Boulevard at 8 a.m. and continued south along the west side of Pine Street without entering Centech Park.
 - No parking signs are located along the east side of Pine Street.
 - A pedestrian crossing sign is located along Westboro Road (Route 30) just east of the Pine Street intersection, crossing individuals from the sidewalk on the north side of the road to the Tufts Veterinary campus.

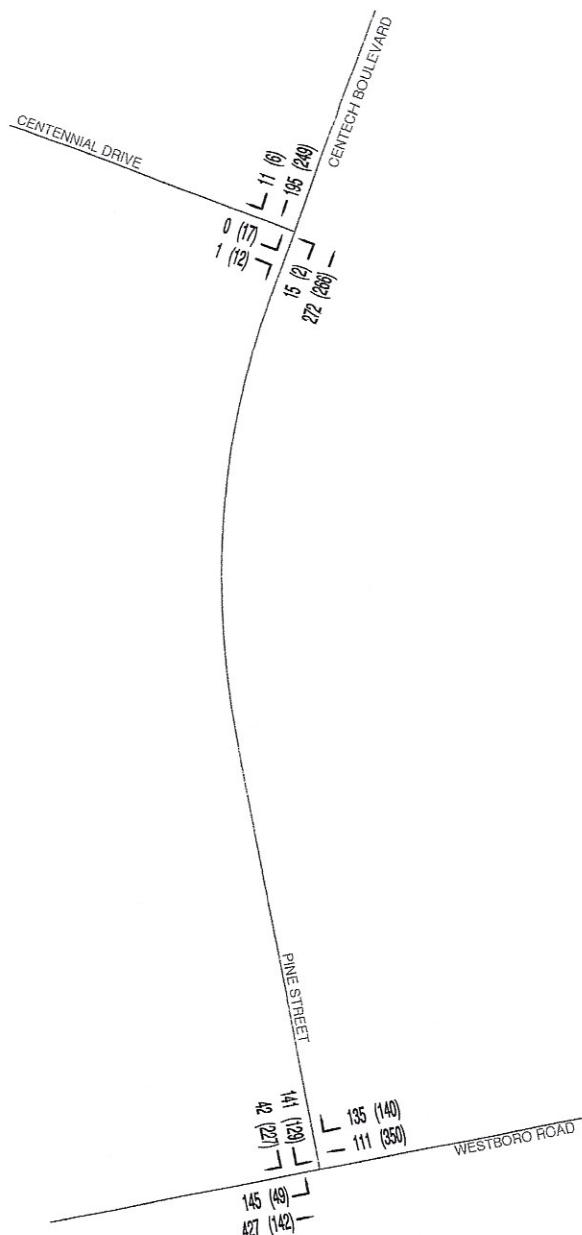
EXISTING TRAFFIC VOLUMES

Based on the traffic counts completed, the a.m. peak hour at the study area intersections occurred between 7:15 a.m. and 8:45 a.m. and the p.m. peak hour occurred from 4:45 p.m. to 5:45 p.m. Since the intersections are unsignalized and therefore not coordinated, the peak hour identified for each location was utilized to produce a conservative analysis.

The data collected was also reviewed with respect to seasonal demands. Monthly data trends from the nearest MassDOT count stations (#307 and #3896) indicate that there are minor peaks in monthly volumes in the months of June, July and August. Additionally, all local schools were in normal session the days counts were completed. For these reasons, no seasonal adjustments were applied to the count data.

Copies of all count data are provided in Appendix A. Existing a.m. peak hour and p.m. peak hour traffic volumes are shown in Figure 3.





XXX AM PEAK HOUR
(XXX) PM PEAK HOUR



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FIGURE 3
NATURE'S REMEDY
Existing (2017) Traffic Volumes
WEEKDAY AM & PM PEAK HOURS
Grafton, MA

SAFETY ANALYSIS

Crash Data

Crash data for the study area was extracted from the MassDOT crash portal for the most recent three (3) year period of January 2012 through December 2014. Crash data was reviewed to determine the presence of safety concerns within the study area.

According to the data reviewed there were four (4) total incidents that occurred in the study area. Of these four (4) total incidents, two (2) incidents occurred on study area roadways not specifically at a study area intersection and two (2) incidents occurred at the intersection of Westboro Road (Route 30) and Pine Street. None of the incidents resulted in injury, including a head-on collision that took place during icy road conditions. A breakdown of the incidents by type and number of injuries can be seen below in Table 1. There were no trends or intensities of incidents noticed that would require or lend themselves to mitigation. A summary table of all crash data reviewed is provided in Appendix B.

Table 1: Crash Summary

Roadway/ Intersection	Non- Fatal Injuries	Fatal Injuries	Angle	Head- On	Loss of Control	Object	Other	Rear- End	Side- Swipe
Westboro Road	0	0	0	0	0	1	0	0	0
Pine Street	0	0	1	0	0	0	0	0	0
Westboro Road / Pine Street	0	0	1	1	0	0	0	0	0

Site Circulation

Circulation to and from the new medicinal marijuana facility is expected to mimic the existing patterns to and from the existing Primary Colors facility. More specifically, all employees, deliveries and pick-ups will enter the site via Centennial Drive and Millennium Drive. Movements along these roadways interior to Centech Park have minimal traffic and little to no conflict. Therefore, the intersection of Centech Boulevard/Pine Street with Centennial Drive is considered the primary access point to the proposed facility from a traffic perspective.

Sight Distance

A speed study was conducted along Centech Boulevard/Pine Street at Centennial Drive during the site visit. The speeds along Centech Boulevard/Pine Street were high for an unposted area. A summary of the speed data results is shown in Table 2. The complete speed data can be found in Appendix C.

Table 2: Speed Data Results for Centech Boulevard/Pine Street

	De Facto Speed	Average Speed	True Median (50th Percentile)	85th Percentile	10 MPH Pace	% over Posted
Northbound	30	34	34	39	29-38	80
Southbound	30	37	38	40	35-44	96



Based on the speed data obtained, a design speed of 40 miles per hour was selected for Centech Boulevard/Pine Street. According to the American Association of State Highway and Transportation Officials (AASHTO) publication *A Policy on the Geometric Design of Highways and Streets, Sixth Edition 2011*, the minimum safe stopping sight distance (SSD) for a 40 mile per hour speed is 305 feet. The minimum safe intersection sight distance (ISD) for turning vehicles from a minor street is 445 feet. A summary of the sight distance available at Centennial Drive can be seen below in Table 3.

Table 3: Sight Distance Summary

		Required SSD (ft)	Measured SSD (ft)	Required ISD (ft)	Measured ISD (ft)
Centennial Drive	To the North	305	410	445	410
	To the South	305	435	445	435

Sight distance both north and south of Centennial Drive is limited by horizontal curvature of the roadway. The available sight distance in both directions is adequate for stopping sight distance but shy of intersection sight distance. The measured intersection sight distances of 410 feet and 435 feet are adequate for speeds up to 37 and 39 miles per hour respectively. According to AASHTO, if the intersection sight distances cannot be achieved, but the available sight distance is at least equal to the appropriate stopping sight distance, then drivers have sufficient sight distance to anticipate and avoid collisions.

FUTURE CONDITIONS

Future traffic volumes are determined by projecting the existing traffic volumes based on a determined annual growth rate and including known potential developments within the study area. The Town of Grafton Planning Department was contacted to determine if there are currently any developments proposed within the vicinity of the site whose trip generation information should be included in the medicinal marijuana facility study. The Planning Department provided a traffic impact assessment (TIA) for a proposed residential development along Institute Road. Though volumes projected along Westboro Road (Route 30) were relatively low, they were included in the no-build scenario for purposes of this study.

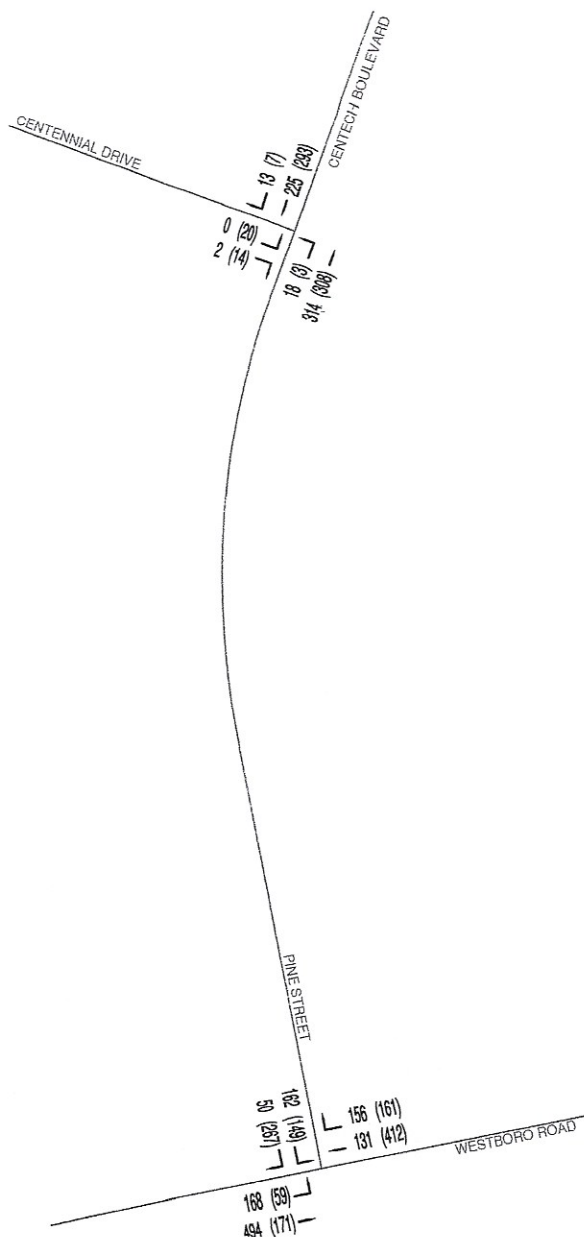
To account for background growth along the roadways within the vicinity of the project site, the existing traffic volumes were projected over a seven-year horizon from 2017 to 2024. Recent census data was reviewed to determine the appropriate growth rate. The census data showed an average growth rate of almost 2.0% per year from 2000 to 2010 for the Town. Based on this information, a growth rate of 2.0% per year was used for the seven-year projection.

A copy of the available census data is provided in Appendix D. Figure 4 provides the 2024 future no-build volumes for the a.m. and p.m. peak hours.

BUILD CONDITIONS

The future 2024 build condition represents the future 2024 no-build condition plus potential traffic expected from the proposed facility. The proposed facility is expected to operate two shifts of 11 employees each for cultivation, and a single shift of 5 employees for distribution. Additionally, up to 4 van trips are expected per day for deliveries and pick-ups as well as one armored vehicle arrival per day.





XXX AM PEAK HOUR
(XXX) PM PEAK HOUR



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FIGURE 4
NATURE'S REMEDY
No-Build (2024) Traffic Volumes
WEEKDAY AM & PM PEAK HOURS
Grafton, MA

Trip Generation

Trip generation for particular land uses are typically calculated using rates provided in the latest edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*. However, ITE does not specify rates for medicinal marijuana facilities. Since the facility will cultivate and distribute medicinal marijuana, the land use codes (LUC) most similar to the intended uses are 140 – Manufacturing and 152 – High-Cube Warehouse/Distribution Center. For both of these uses, trip generation seemed low compared to the intended employee count for the facility.

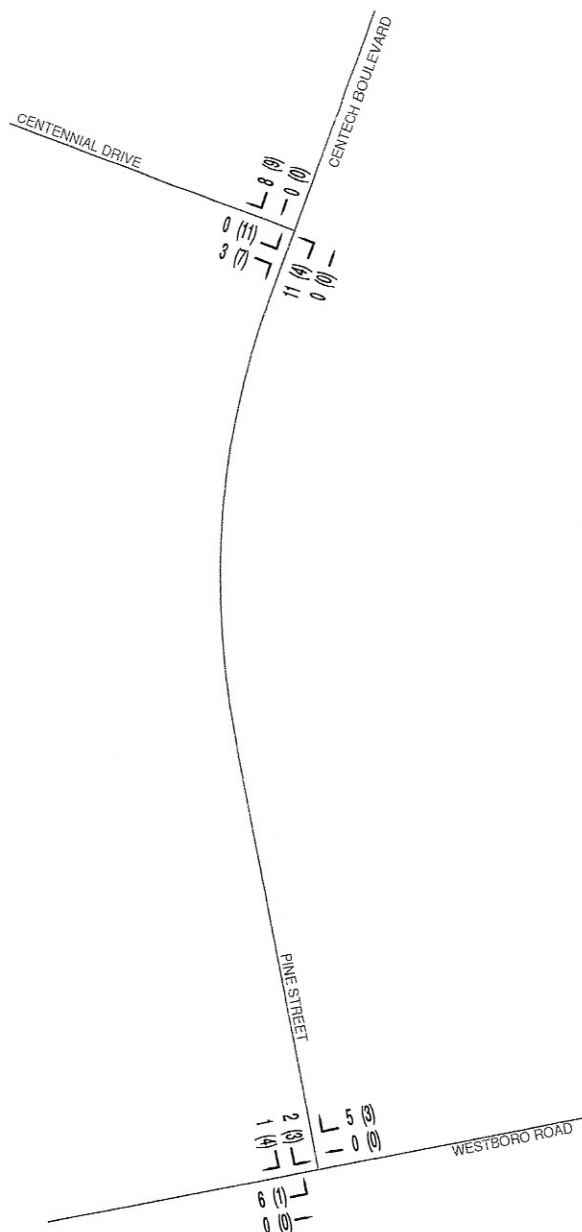
For a conservative analysis, it was assumed that all first shift employees will arrive during the morning peak hour, along with 2 vans and the armored vehicle. Morning departures are expected to consist of the 2 vans and 1 armored vehicle only. In the afternoon peak, it is assumed that all first shift employees will leave and all second shift employees will arrive, along with the arrival and departure of two more vans.

Trip Distribution

The proposed facility is situated just north of I-90, between I-290 and I-495. Access to I-90 from the site is most easily achieved via Westboro Road (Route 30). This is expected to be the primary route for deliveries, which mimics the route of service vehicles currently captured at Centech Park during the a.m. counts.

Trip distribution was completed for the proposed facility by adding the proposed traffic into the existing traffic stream based on the existing count volumes at each study area intersection.

Complete trip distribution calculations are provided in Appendix E. The site-generated and future (2024) build volumes are shown in Figures 5 and 6 respectively.



XXX AM PEAK HOUR
(XXX) PM PEAK HOUR

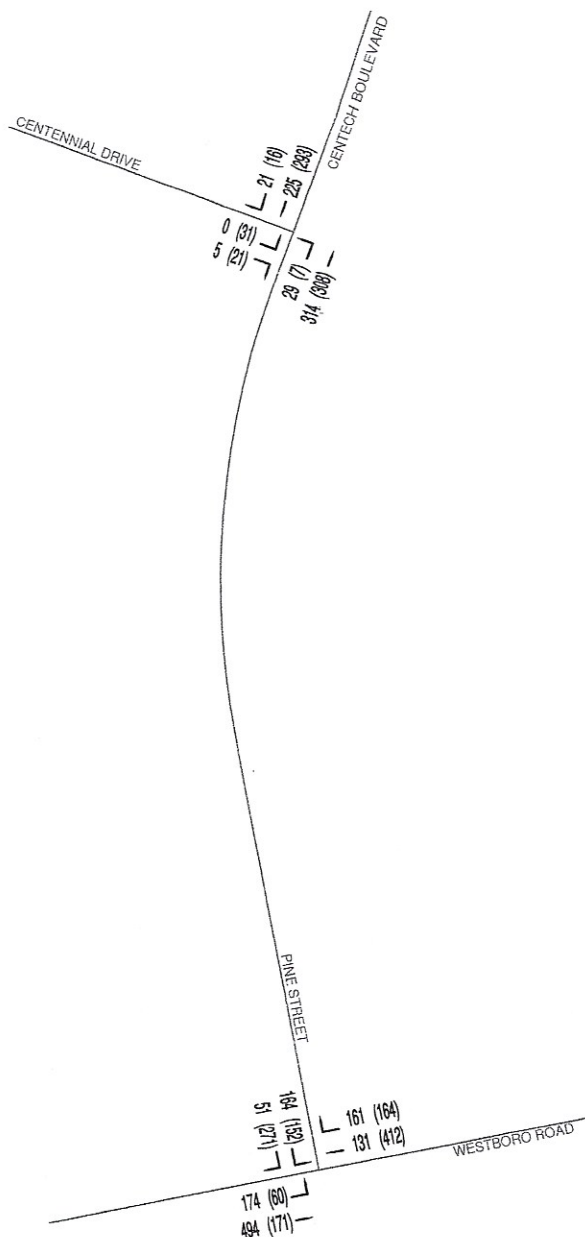


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FIGURE 5
NATURE'S REMEDY
Site Generated Traffic Volumes
WEEKDAY AM & PM PEAK HOURS
Grafton, MA



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FIGURE 6
NATURE'S REMEDY
Build (2024) Traffic Volumes
WEEKDAY AM & PM PEAK HOURS
Grafton, MA

CAPACITY ANALYSIS

Capacity analysis was completed for all study intersections for existing, future 2024 no-build, and future 2024 build conditions. Capacity analysis characterizes intersections based on their level of service (LOS). LOS is a quality measure describing operational conditions within a traffic stream, generally in terms of service measures such as speed, travel times, traffic interruptions, etc. Six LOS, from A to F, are defined for each type of facility, with A representing the best operating conditions and F representing the worst operating conditions. The LOS criteria for unsignalized intersections are provided in Table 4 below. Tables 5 and 6 provide the capacity analysis results for all intersections for the a.m. and p.m. peak hours respectively. The complete capacity analyses can be found in Appendix F.

Table 4: LOS Criteria for Unsignalized Intersections

Unsignalized Intersection	
LOS	Delay Time (sec/veh)
A	0-10
B	> 10-15
C	> 15-25
D	> 25-35
E	> 35-50
F	> 50

Table 5: A.M. Peak Hour LOS Table

Intersection	Movement		Existing (2017)		Future (2024) No-Build		Future (2024) Build	
			LOS (Delay ¹)	Queue Length ²	LOS (Delay ¹)	Queue Length ²	LOS (Delay ¹)	Queue Length ²
Centech/Pine at Centennial	NB	Approach	A (0.4)	0	A (0.4)	0	A (0.7)	3
	SB	Approach	N/C	-	N/C	-	N/C	-
	EB	Approach	B (11.5)	0	B (11.2)	0	B (11.2)	0
Westboro at Pine	SB	Approach	F (64.1)	205	F (88.5)	213	F (100.5)	230
	EB	Approach	A (2.1)	10	A (2.1)	13	A (2.2)	13
	WB	Approach	N/C	-	N/C	-	N/C	-

Table 6: P.M. Peak Hour LOS Table

Intersection	Movement		Existing (2017)		Future (2024) No-Build		Future (2024) Build	
			LOS (Delay ¹)	Queue Length ²	LOS (Delay ¹)	Queue Length ²	LOS (Delay ¹)	Queue Length ²
Centech/Pine at Centennial	NB	Approach	A (0.1)	0	A (0.1)	0	A (0.2)	0
	SB	Approach	N/C	-	N/C	-	N/C	-
	EB	Approach	B (12.5)	5	B (12.7)	5	B (13.2)	10
Westboro at Pine	SB	Approach	B (13.6)	80	B (14.1)	83	B (14.3)	85
	EB	Approach	A (2.3)	5	A (2.4)	5	A (2.4)	5
	WB	Approach	N/C	-	N/C	-	N/C	-

N/C – No Conflict.

1. Delay shown in seconds per vehicle.

2. Queue Length shown in feet.



CONCLUSIONS

The crash data reviewed and summarized from January 2012 through December 2014 for the study area revealed a low frequency of incidents (less than 3 per year) at all study area intersections. All study area incidents, including this intersection, were of low severity with no reported injuries. There were no trends or concerns of incidents near the proposed facility that lend themselves to mitigation.

Sight distances reviewed for Centennial Drive at Centech Boulevard/Pine Street indicate that there is sufficient stopping sight distance in both directions, as well as adequate intersection sight distance for speeds up to 37 and 39 miles per hour to the north and south respectively, well over the defacto speed limit of 30 miles per hour.

Level of service and delay impacts at the intersections within the study area are expected to be minor. Centennial Drive is expected to continue operating at LOS B, with no impact on LOS along Centech Boulevard/Pine Street. All approaches to the intersection of Westboro Road (Route 30) with Pine Street are expected to maintain their existing LOS with marginal changes in delay and queue compared to the no-build scenario.

In summary, the construction of the proposed medicinal marijuana facility is expected to have minimal impact on the traffic and safety operations within the study area, and no mitigation is necessary.

RECOMMENDATIONS

Though the proposed medicinal marijuana facility is not expected to have any negative traffic or safety implications on the roadways within the study area, the Town could consider installing posted speed limit signs along Centech Boulevard/Pine Street to help reduce speeds in this area.



Appendix A

Traffic Counts





Pare Corporation

8 Blackstone Valley Place
Lincoln, RI 02865
www.parecorp.com

Nature's Remedy - Grafton, MA
Pare Project No: 17077.00
Recorded By: CP
Weather: Clear, Warm

File Name : centech-centen - morning
Site Code : 17077002
Start Date : 6/14/2017
Page No : 1

Groups Printed - Cars - Trucks

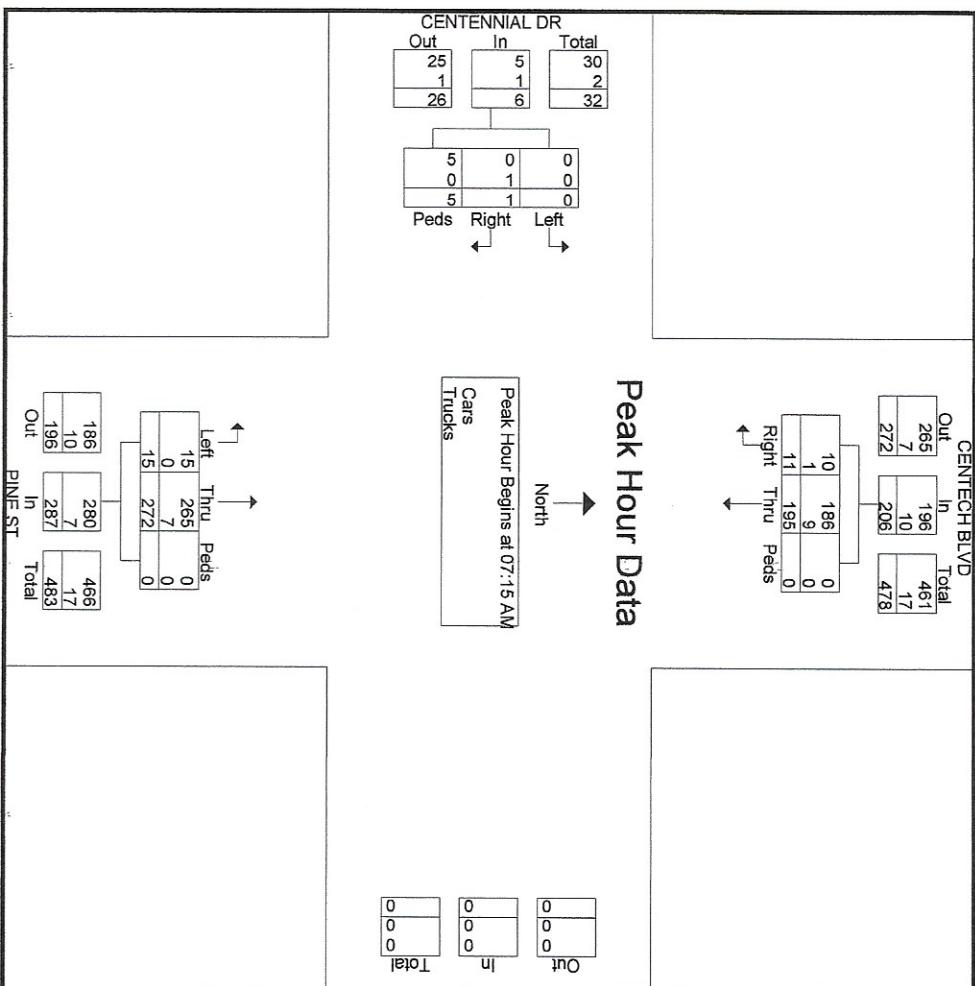
CENTECH BLVD					PINE ST					CENTENNIAL DR				
From North					From South					From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total	
07:00 AM	0	46	0	46	51	0	0	51	1	1	2	4	101	
07:15 AM	1	43	0	44	53	4	0	57	0	0	0	0	101	
07:30 AM	1	48	0	49	73	2	0	75	0	0	1	1	125	
07:45 AM	4	72	0	76	81	4	0	85	0	0	1	1	162	
Total	6	209	0	215	258	10	0	268	1	1	4	6	489	
08:00 AM	5	32	0	37	65	5	0	70	1	0	3	4	111	
08:15 AM	2	30	0	32	52	3	0	55	0	1	1	2	89	
08:30 AM	2	42	0	44	60	4	0	64	0	1	1	2	110	
08:45 AM	2	56	0	58	40	3	0	43	0	0	0	0	101	
Total	11	160	0	171	217	15	0	232	1	2	5	8	411	
Grand Total	17	369	0	386	475	25	0	500	2	3	9	14	900	
Apprch %	4.4	95.6	0		95	5	0		14.3	21.4	64.3			
Total %	1.9	41	0	42.9	52.8	2.8	0	55.6	0.2	0.3	1	1.6		
Cars	16	356	0	372	456	25	0	481	1	3	9	13	866	
% Cars	94.1	96.5	0	96.4	96	100	0	96.2	50	100	100	92.9	96.2	
Trucks	1	13	0	14	19	0	0	19	1	0	0	1	34	
% Trucks	5.9	3.5	0	3.6	4	0	0	3.8	50	0	0	7.1	3.8	

CENTECH BLVD				PINE ST				CENTENNIAL DR					
From North				From South				From West					
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	1	43	0	44	53	4	0	57	0	0	0	0	101
07:30 AM	1	48	0	49	73	2	0	75	0	0	1	1	125
07:45 AM	4	72	0	76	81	4	0	85	0	0	1	1	162
08:00 AM	5	32	0	37	65	5	0	70	1	0	3	4	111
Total Volume	11	195	0	206	272	15	0	287	1	0	5	6	499
% App. Total	5.3	94.7	0		94.8	5.2	0		16.7	0	83.3		
PHF	.550	.677	.000	.678	.840	.750	.000	.844	.250	.000	.417	.375	.770
Cars	10	186	0	196	265	15	0	280	0	0	5	5	481
% Cars	90.9	95.4	0	95.1	97.4	100	0	97.6	0	0	100	83.3	96.4
Trucks	1	9	0	10	7	0	0	7	1	0	0	1	18
% Trucks	9.1	4.6	0	4.9	2.6	0	0	2.4	100	0	0	16.7	3.6

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

Nature's Remedy - Grafton, MA
Pare Project No: 17077.00
Recorded By: CP
Weather: Clear, Warm

File Name : centech-centen - morning
Site Code : 17077002
Start Date : 6/14/2017
Page No : 2



Pare Corporation

8 Blackstone Valley Place
Lincoln, RI 02865
www.parecorp.com

Nature's Remedy - Grafton, MA
Pare Project No: 17077.00
Recorded By: MS
Weather: Clear, Warm

File Name : westboro-pine - morning
Site Code : 17077001
Start Date : 6/14/2017
Page No : 1

Groups Printed- Cars - Trucks

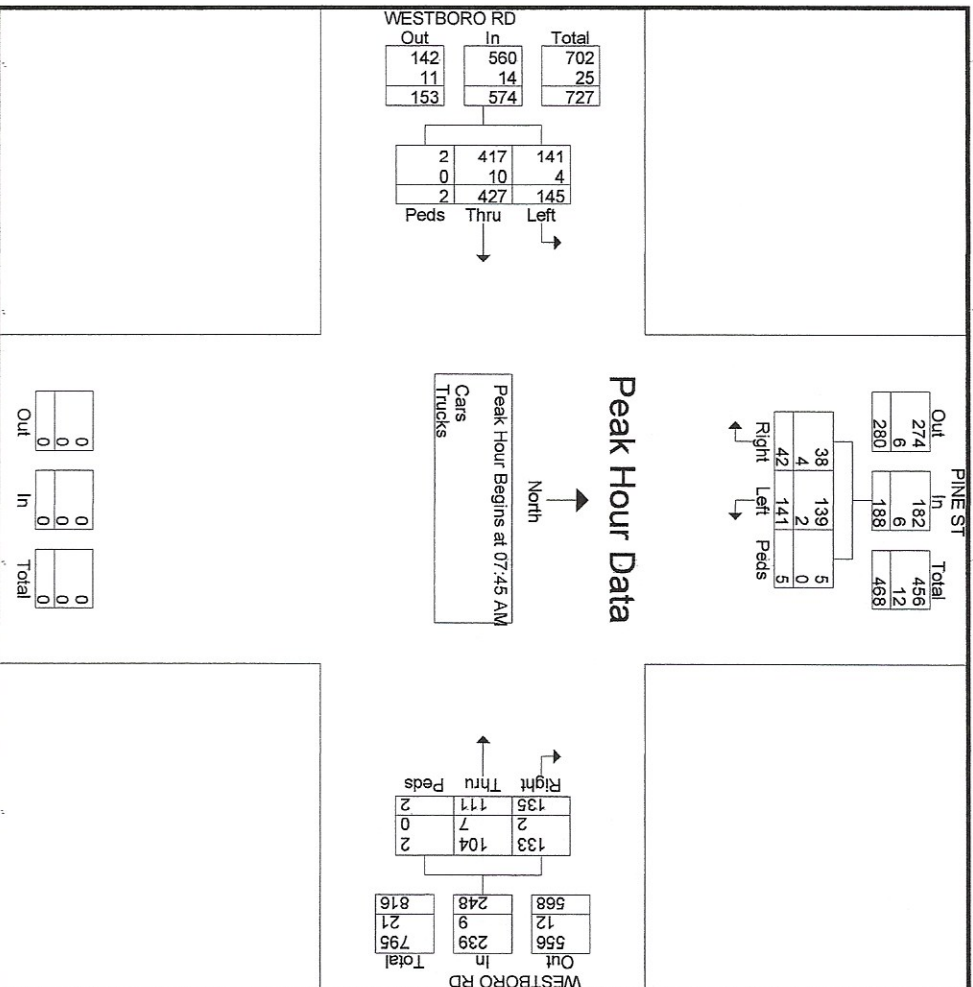
	PINE ST From North				WESTBORO RD From East				WESTBORO RD From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
Start Time													
07:00 AM	16	27	0	43	34	18	0	52	49	70	0	119	214
07:15 AM	5	26	1	32	27	28	0	55	91	52	0	143	230
07:30 AM	13	30	0	43	36	26	1	63	80	50	0	130	236
07:45 AM	6	63	1	70	39	33	0	72	111	42	0	153	295
Total	40	146	2	188	136	105	1	242	331	214	0	545	975
08:00 AM	7	31	0	38	33	24	1	58	98	34	0	132	228
08:15 AM	11	21	3	35	25	25	0	50	111	35	1	147	232
08:30 AM	18	26	1	45	38	29	1	68	107	34	1	142	255
08:45 AM	12	44	0	56	27	38	1	66	102	22	0	124	246
Total	48	122	4	174	123	116	3	242	418	125	2	545	961
Grand Total	88	268	6	362	259	221	4	484	749	339	2	1090	1936
Approch %	24.3	74	1.7	18.7	53.5	45.7	0.8	25	68.7	31.1	0.2	56.3	
Total %	4.5	13.8	0.3	18.7	13.4	11.4	0.2	25	38.7	17.5	0.1	56.3	
Cars	81	260	6	347	256	208	4	468	732	328	2	1062	1877
% Cars	92	97	100	95.9	98.8	94.1	100	96.7	97.7	96.8	100	97.4	97
Trucks	7	8	0	15	3	13	0	16	17	11	0	28	59
% Trucks	8	3	0	4.1	1.2	5.9	0	3.3	2.3	3.2	0	2.6	3

	PINE ST From North				WESTBORO RD From East				WESTBORO RD From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
Start Time													
07:45 AM	6	63	1	70	39	33	0	72	111	42	0	153	295
08:00 AM	7	31	0	38	33	24	1	58	98	34	0	132	228
08:15 AM	11	21	3	35	25	25	0	50	111	35	1	147	232
08:30 AM	18	26	1	45	38	29	1	68	107	34	1	142	255
Total Volume	42	141	5	188	135	111	2	248	427	145	2	574	1010
% App. Total	22.3	75	2.7	67.1	54.4	44.8	0.8	86.1	74.4	25.3	0.3	93.8	
PHF	.583	.560	.417		.865	.841	.500		.962	.863	.500		
Cars	38	139	5	182	133	104	2	239	417	141	2	560	981
% Cars	90.5	98.6	100	96.8	98.5	93.7	100	96.4	97.7	97.2	100	97.6	97.1
Trucks	4	2	0	6	2	7	0	9	10	4	0	14	29
% Trucks	9.5	1.4	0	3.2	1.5	6.3	0	3.6	2.3	2.8	0	2.4	2.9

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:45 AM

Nature's Remedy - Grafton, MA
Pare Project No: 17077.00
Recorded By: MS
Weather: Clear, Warm

File Name : westboro-pine - morning
Site Code : 17077001
Start Date : 6/14/2017
Page No : 2



Pare Corporation

8 Blackstone Valley Place
Lincoln, RI 02865
www.parecorp.com

Nature's Remedy - Grafton, MA
Pare Project No: 17077.00
Recorded By: BP
Weather: Clear, Warm

File Name : centech-centen - afternoon
Site Code : 17077002
Start Date : 6/14/2017
Page No : 1

Groups Printed- Cars - Trucks

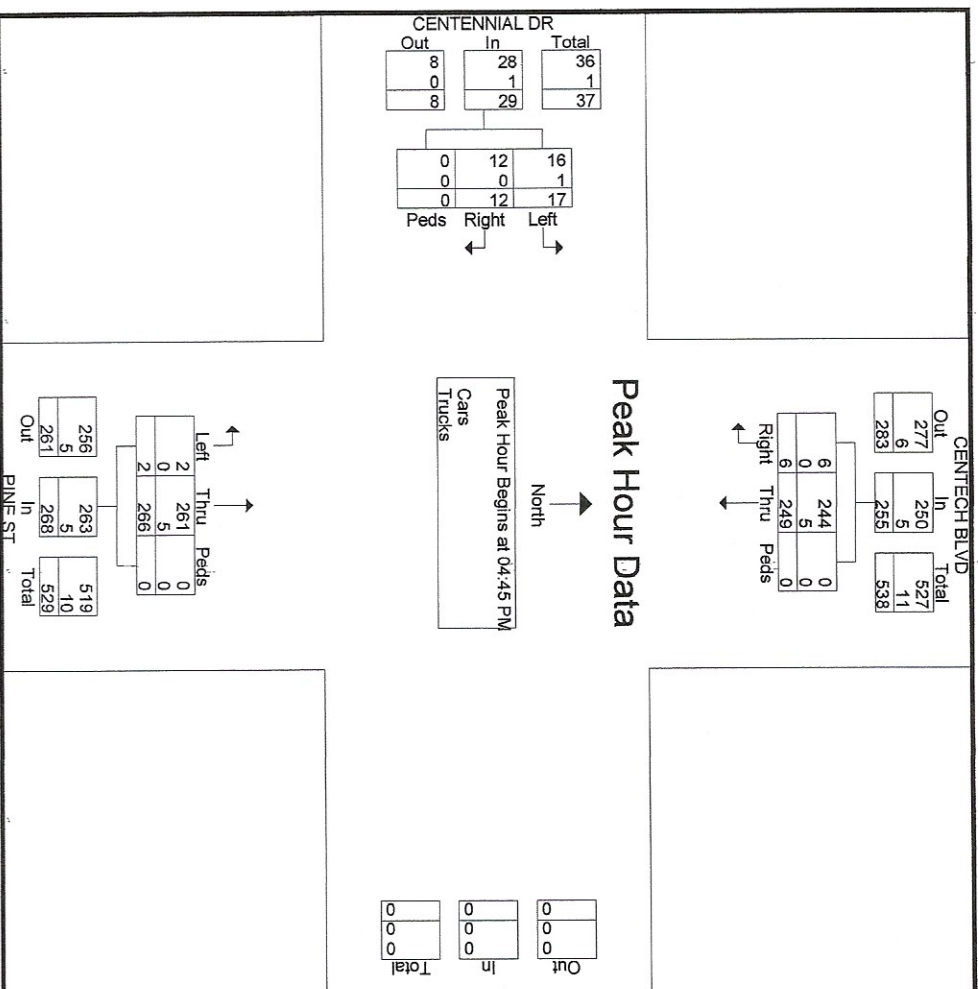
CENTECH BLVD															PINE ST					CENTENNIAL DR				
From North															From South					From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total											
04:00 PM	3	46	0	49	54	2	0	56	4	4	3	11	116											
04:15 PM	3	47	0	50	44	1	0	45	3	3	1	7	102											
04:30 PM	1	51	0	52	47	1	0	48	5	3	0	8	108											
04:45 PM	2	63	0	65	59	0	0	59	1	7	0	8	132											
Total	9	207	0	216	204	4	0	208	13	17	4	34	458											
05:00 PM	2	76	0	78	69	1	0	70	6	2	0	8	156											
05:15 PM	2	56	0	58	51	0	0	51	2	2	0	4	113											
05:30 PM	0	54	0	54	87	1	0	88	3	6	0	9	151											
05:45 PM	2	46	0	48	52	1	0	53	2	4	0	6	107											
Total	6	232	0	238	259	3	0	262	13	14	0	27	527											
Grand Total	15	439	0	454	463	7	0	470	26	31	4	61	985											
Approch %	3.3	96.7	0	46.1	98.5	1.5	0	47.7	42.6	50.8	6.6	6.2												
Total %	1.5	44.6	0	46.1	47	0.7	0	47.7	2.6	3.1	0.4	6.2												
Cars	14	431	0	445	451	6	0	457	24	29	4	57	959											
% Cars	93.3	98.2	0	98	97.4	85.7	0	97.2	92.3	93.5	100	93.4	97.4											
Trucks	1	8	0	9	12	1	0	13	2	2	0	4	26											
% Trucks	6.7	1.8	0	2	2.6	14.3	0	2.8	7.7	6.5	0	6.6	2.6											

CENTECH BLVD					PINE ST					CENTENNIAL DR					
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total		
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1															
Peak Hour for Entire Intersection Begins at 04:45 PM															
04:45 PM	2	63	0	65	59	0	0	59	1	7	0	8	132		
05:00 PM	2	76	0	78	69	1	0	70	6	2	0	8	156		
05:15 PM	2	56	0	58	51	0	0	51	2	2	0	4	113		
05:30 PM	0	54	0	54	87	1	0	88	3	6	0	9	151		
Total Volume	6	249	0	255	266	2	0	268	12	17	0	29	552		
% App. Total	2.4	97.6	0		99.3	0.7	0		41.4	58.6	0				
PHF	.750	.819	.000	.817	.764	.500	.000	.761	.500	.607	.000	.806	.885		
Cars	6	244	0	250	261	2	0	263	12	16	0	28	541		
% Cars	100	98.0	0	98.0	98.1	100	0	98.1	100	94.1	0	96.6	98.0		
Trucks	0	5	0	5	5	0	0	5	0	1	0	1	11		
% Trucks	0	2.0	0	2.0	1.9	0	0	1.9	0	5.9	0	3.4	2.0		

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM

Nature's Remedy - Grafton, MA
Pare Project No: 17077.00
Recorded By: BP
Weather: Clear, Warm

File Name : centech-centen - afternoon
Site Code : 17077002
Start Date : 6/14/2017
Page No : 2



Pare Corporation

8 Blackstone Valley Place
Lincoln, RI 02865
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Nature's Remedy - Grafton, MA
Pare Project No: 17077.00
Recorded By: MS
Weather: Clear, Warm

File Name : westboro-pine - afternoon
Site Code : 17077001
Start Date : 6/14/2017
Page No : 1

Groups Printed- Cars - Trucks

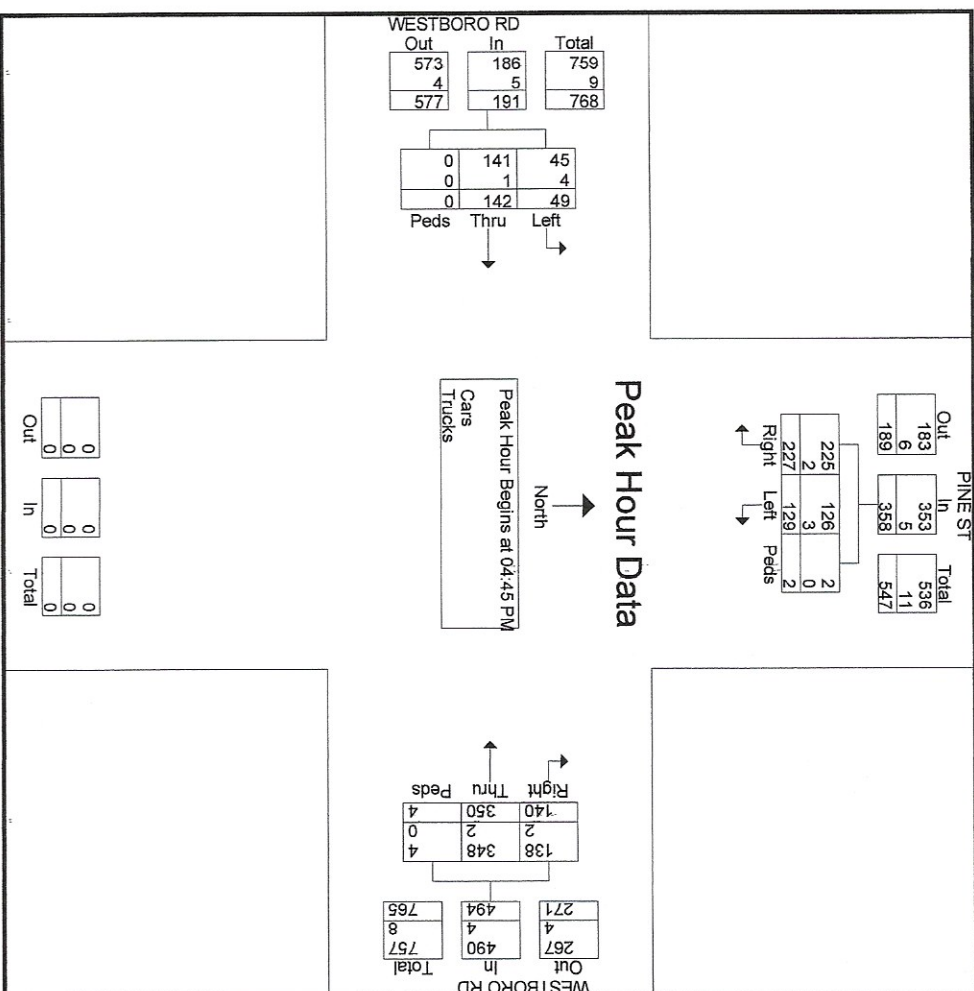
PINE ST					WESTBORO RD					WESTBORO RD				
From North					From East					From West				
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total	
Start Time														
04:00 PM	29	26	0	55	40	71	0	111	26	12	0	38	204	
04:15 PM	23	29	0	52	32	79	1	112	36	10	0	46	210	
04:30 PM	33	23	0	56	30	75	0	105	31	19	0	50	211	
04:45 PM	63	30	0	93	24	70	0	94	30	16	0	46	233	
Total	148	108	0	256	126	295	1	422	123	57	0	180	858	
05:00 PM	57	24	0	81	44	102	2	148	41	16	0	57	286	
05:15 PM	25	41	0	66	34	97	1	132	48	7	0	55	253	
05:30 PM	82	34	2	118	38	81	1	120	23	10	0	33	271	
05:45 PM	18	30	0	48	42	56	0	98	29	12	0	41	187	
Total	182	129	2	313	158	336	4	498	141	45	0	186	997	
Grand Total	330	237	2	569	284	631	5	920	264	102	0	366	1855	
Approch %	58	41.7	0.4	30.7	30.9	68.6	0.5	49.6	72.1	27.9	0	19.7		
Total %	17.8	12.8	0.1	30.7	15.3	34	0.3	49.6	14.2	5.5	0	19.7	1826	
Cars	325	229	2	556	279	628	4	911	263	96	0	359	98.4	
% Cars	98.5	96.6	100	97.7	98.2	99.5	80	99	99.6	94.1	0	98.1		
Trucks	5	8	0	13	5	3	1	9	1	6	0	7	29	
% Trucks	1.5	3.4	0	2.3	1.8	0.5	20	1	0.4	5.9	0	1.9	1.6	

PINE ST					WESTBORO RD					WESTBORO RD				
From North					From East					From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 04:45 PM														
04:45 PM	63	30	0	93	24	70	0	94	30	16	0	46	233	
05:00 PM	57	24	0	81	44	102	2	148	41	16	0	57	286	
05:15 PM	25	41	0	66	34	97	1	132	48	7	0	55	253	
05:30 PM	82	34	2	118	38	81	1	120	23	10	0	33	271	
Total Volume	227	129	2	358	140	350	4	494	142	49	0	191	1043	
% App. Total	63.4	36	0.6		28.3	70.9	0.8		74.3	25.7	0			
PHF	692	787	250	7.58	795	858	500	834	740	766	.000	838	912	
Cars	225	126	2	353	138	348	4	490	141	45	0	186	1029	
% Cars	99.1	97.7	100	98.6	98.6	99.4	100	99.2	99.3	91.8	0	97.4	98.7	
Trucks	2	3	0	5	2	2	0	4	1	4	0	5	14	
% Trucks	0.9	2.3	0	1.4	1.4	0.6	0	0.8	0.7	8.2	0	2.6	1.3	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM

Nature's Remedy - Grafton, MA
Pare Project No: 17077.00
Recorded By: MS
Weather: Clear, Warm

File Name : westboro-pine - afternoon
Site Code : 17077001
Start Date : 6/14/2017
Page No : 2



Appendix B

Crash Data





Nature's Remedy
 Grafton, Massachusetts
 January 2012 - December 2014
 Pare Project No. 17077.00
 June 2017



Report No.	Date	On Street	Intersecting Street	Directions of Travel	No. of Vehicles	Injuries	Fatalities	Weather Condition	Road Condition	Lighting	Crash Type
3397967	10-Feb-2013	WESTBORO ROAD	DISCOVER DRIVE	1	0	0	EB	Cloudy	Ice	Daylight	Object (GR)
3822190	14-Feb-2014	PINE STREET	WESTBORO ROAD	2	0	0	SB/NB	Clear	Ice	Daylight	Head-on
3881034	07-Mar-2014	PINE STREET		1	0	0	SB	Clear	Dry	Daylight	Angle
3977324	06-Oct-2014	WESTBORO ROAD	PINE STREET	2	0	0	SB/WB	Clear	Dry	Daylight	Angle

Appendix C

Speed Study





Pare Corporation



8 Blackstone Valley Place
Lincoln, RI, 02865
401-334-4100
www.parecorp.com

Roadway: Centech Blvd/Pine St
Location: Centennial Drive
Weather: Sunny, warm
Taken By: AA

File Name : Nature Rem Speed Study
Site Code : 17077001
Start Date : 6/15/2017
Page No : 1

#	Northbound	Southbound
1	37	44
2	38	37
3	36	31
4	35	31
5	31	38
6	34	36
7	34	36
8	33	38
9	33	36
10	32	37
11	34	38
12	43	44
13	33	3
14	39	38
15	32	42
16	33	38
17	37	43
18	36	38
19	32	35
20	40	39
21	32	38
22	29	39
23	29	38
24	29	40
25	41	
26	42	
27	35	
28	48	
29	34	
30	32	
31	27	
32	26	
33	30	
34	30	
35	36	
36		

Class	Vehicle Count	85 Percentile	10 MPH Pace Speed	Number in Pace	Percent in Pace	True Median (50th Percentile)	Average Speed	Number of Vehicles Over 30 MPH	Percent of Vehicles Over 30 MPH
Northbound	35	39	29 - 38	27	77	34	34	28	80
Southbound	24	40	35 - 44	21	88	38	37	23	96
Summary	59	40	29 - 38	43	73	36	35	51	86



Appendix D

Census Data



Historical population

Year	Pop.	±%
1850	3,904	—
1860	4,317	+10.6%
1870	4,594	+6.4%
1880	4,030	-12.3%
1890	5,002	+24.1%
1900	4,869	-2.7%
1910	5,705	+17.2%
1920	6,887	+20.7%
1930	7,030	+2.1%
1940	7,457	+6.1%
1950	8,281	+11.1%
1960	10,627	+28.3%
1970	11,659	+9.7%
1980	11,238	-3.6%
1990	13,035	+16.0%
2000	14,894	+14.3%
2010	17,765	+19.3%

Source: [United States Census](#)
records and [Population Estimates](#)
[Program](#) data.

[8][9][10][11][12][13][14][15][16][17]



Appendix E
Trip Distribution



Nature's Remedy
 Grafton, MA
 Future 2024 No-Build Traffic Volumes
 Pare Project No. 17077.00
 June 14, 2017

2017-2024
 NO-BUILD TRAFFIC VOLUMES
 Future No-Build Growth Factor = 2.0%

AM Peak Hour
 7:15 - 8:45 AM

PM Peak Hour
 4:45 - 5:45 PM

**Westboro Road &
 Pine Street**

	2017 Existing	2024 No-Build
SB - LT	141	162
SB - RT	42	50
EB - LT	145	168
EB - T	427	494
WB - T	111	131
WB - RT	135	156

**Westboro Road &
 Pine Street**

	2017 Existing	2024 No-Build
SB - LT	129	149
SB - RT	227	267
EB - LT	49	59
EB - T	142	171
WB - T	350	412
WB - RT	140	161

**Centech Boulevard &
 Centennial Drive**

	2017 Existing	2024 No-Build
NB - LT	15	18
NB - T	272	314
SB - T	195	225
SB - RT	11	13
EB - LT	0	0
EB - RT	1	2

**Centech Boulevard &
 Centennial Drive**

	2017 Existing	2024 No-Build
NB - LT	2	3
NB - T	266	308
SB - T	249	293
SB - RT	6	7
EB - LT	17	20
EB - RT	12	14

Nature's Remedy
 Grafton, MA
 Future 2024 Build Traffic Volumes
 Pare Project No. 17077.00
 June 14, 2017

2017-2024
BUILD TRAFFIC VOLUMES
 Future Build = No-Build + Site Generated

AM Peak Hour
 7:15 - 8:45 AM

School Peak Hour
 4:45 - 5:45 PM

**Westboro Road &
 Pine Street**

	Site Generated	2024 Build
SB - LT	2	164
SB - RT	1	51
EB - LT	6	174
EB - T	0	494
WB - T	0	131
WB - RT	5	161

**Westboro Road &
 Pine Street**

	Site Generated	2024 Build
SB - LT	3	152
SB - RT	4	271
EB - LT	1	60
EB - T	0	171
WB - T	0	412
WB - RT	3	164

**Centech Boulevard &
 Centennial Drive**

	Site Generated	2024 Build
NB - LT	11	29
NB - T	0	314
SB - T	0	225
SB - RT	8	21
EB - LT	0	0
EB - RT	3	5

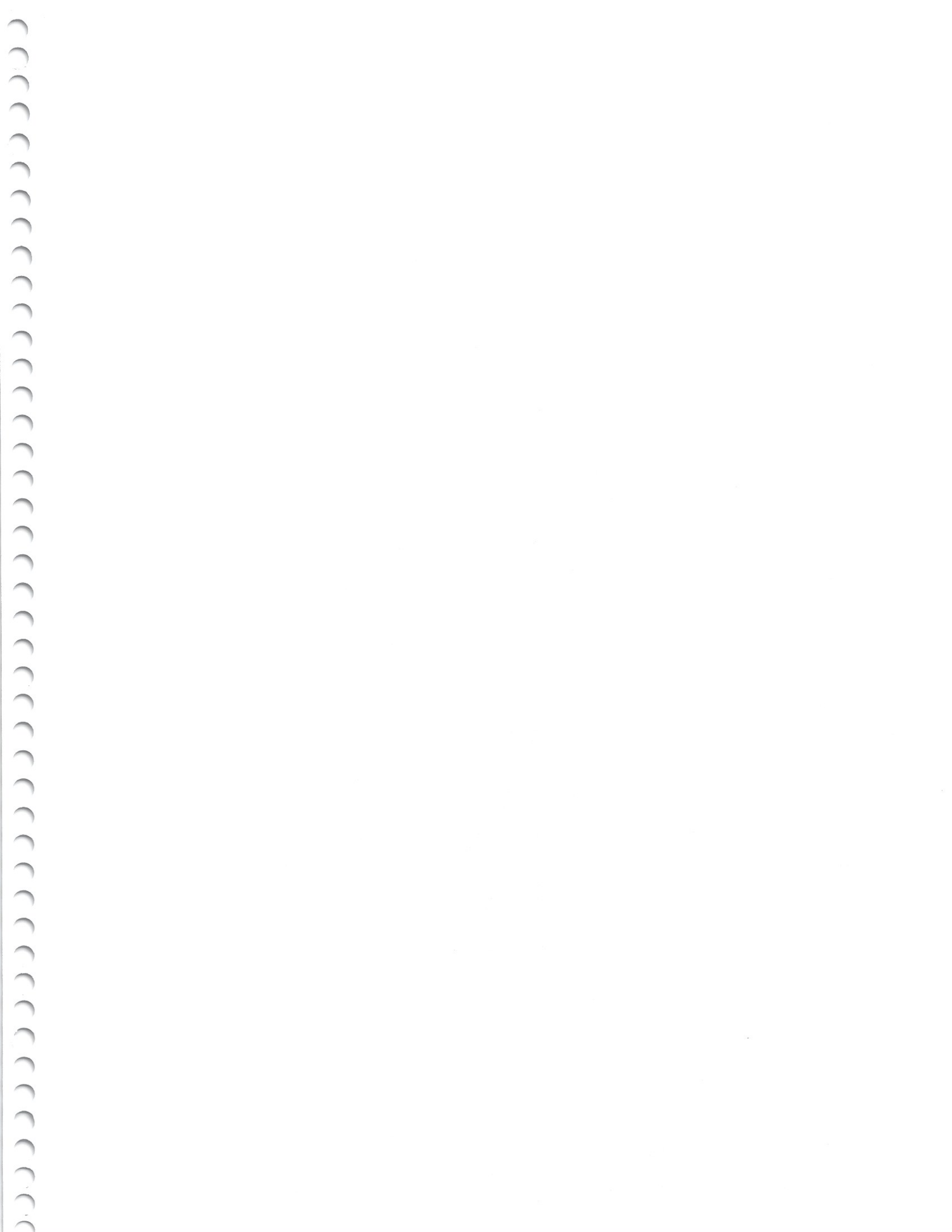
**Centech Boulevard &
 Centennial Drive**

	Site Generated	2024 Build
NB - LT	4	7
NB - T	0	308
SB - T	0	293
SB - RT	9	16
EB - LT	11	31
EB - RT	7	21

Appendix F

Traffic Capacity Analysis





HCM 2010 TWSC
2: Westboro Rd & Pine St

Nature's Remedy
Existing AM Peak

Intersection

Int Delay, s/veh 16.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	145	427	111	135	141	42
Conflicting Peds, #/hr	5	0	0	5	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	86	86	67	67
Heavy Vehicles, %	3	2	6	2	1	10
Mvmt Flow	154	454	129	157	210	63

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	288	0	973
Stage 1	-	-	210
Stage 2	-	-	763
Critical Hdwy	4.13	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.227	-	3.509
Pot Cap-1 Maneuver	1268	-	281
Stage 1	-	-	827
Stage 2	-	-	462
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1262	-	246
Mov Cap-2 Maneuver	-	-	246
Stage 1	-	-	825
Stage 2	-	-	405

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	64.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1262	-	-	-	308
HCM Lane V/C Ratio	0.122	-	-	-	0.887
HCM Control Delay (s)	8.2	-	-	-	64.1
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0.4	-	-	-	8.2

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	1	15	272	195	11
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	38	38	84	84	68	68
Heavy Vehicles, %	0	100	0	3	5	9
Mvmt Flow	0	3	18	324	287	16

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	655	300	303 0
Stage 1	295	-	- -
Stage 2	360	-	- -
Critical Hdwy	6.4	7.2	4.1 -
Critical Hdwy Stg 1	5.4	-	- -
Critical Hdwy Stg 2	5.4	-	- -
Follow-up Hdwy	3.5	4.2	2.2 -
Pot Cap-1 Maneuver	434	558	1269 -
Stage 1	760	-	- -
Stage 2	710	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	427	555	1263 -
Mov Cap-2 Maneuver	427	-	- -
Stage 1	760	-	- -
Stage 2	698	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	11.5	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1263	-	555	-	-
HCM Lane V/C Ratio	0.014	-	0.005	-	-
HCM Control Delay (s)	7.9	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	17.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	168	494	131	156	162	50
Conflicting Peds, #/hr	5	0	0	5	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	6	2	1	10
Mvmt Flow	183	537	142	170	176	54
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	314	0	-	0	1131	234
Stage 1	-	-	-	-	229	-
Stage 2	-	-	-	-	902	-
Critical Hdwy	4.13	-	-	-	6.41	6.3
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.227	-	-	-	3.509	3.39
Pot Cap-1 Maneuver	1241	-	-	-	226	786
Stage 1	-	-	-	-	811	-
Stage 2	-	-	-	-	398	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1235	-	-	-	192	781
Mov Cap-2 Maneuver	-	-	-	-	192	-
Stage 1	-	-	-	-	809	-
Stage 2	-	-	-	-	338	-
Approach	EB		WB		SB	
HCM Control Delay, s	2.1		0		88.5	
HCM LOS					F	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1235	-	-	-	243	
HCM Lane V/C Ratio	0.148	-	-	-	0.948	
HCM Control Delay (s)	8.4	-	-	-	88.5	
HCM Lane LOS	A	-	-	-	F	
HCM 95th %tile Q(veh)	0.5	-	-	-	8.5	

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	2	18	314	225	13
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	38	38	92	92	92	92
Heavy Vehicles, %	0	100	0	3	5	9
Mvmt Flow	0	5	20	341	245	14

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	632	257	259 0
Stage 1	252	-	- -
Stage 2	380	-	- -
Critical Hdwy	6.4	7.2	4.1 -
Critical Hdwy Stg 1	5.4	-	- -
Critical Hdwy Stg 2	5.4	-	- -
Follow-up Hdwy	3.5	4.2	2.2 -
Pot Cap-1 Maneuver	448	593	1317 -
Stage 1	795	-	- -
Stage 2	696	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	439	590	1311 -
Mov Cap-2 Maneuver	439	-	- -
Stage 1	795	-	- -
Stage 2	683	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	11.2	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1311	-	590	-	-
HCM Lane V/C Ratio	0.015	-	0.009	-	-
HCM Control Delay (s)	7.8	0	11.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 19.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	174	494	131	161	164	51
Conflicting Peds, #/hr	5	0	0	5	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	6	2	1	10
Mvmt Flow	189	537	142	175	178	55

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	319	0	1147
Stage 1	-	-	232
Stage 2	-	-	915
Critical Hdwy	4.13	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.227	-	3.509
Pot Cap-1 Maneuver	1235	-	221
Stage 1	-	-	809
Stage 2	-	-	392
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1229	-	186
Mov Cap-2 Maneuver	-	-	186
Stage 1	-	-	807
Stage 2	-	-	331

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	100.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1229	-	-	-	236
HCM Lane V/C Ratio	0.154	-	-	-	0.99
HCM Control Delay (s)	8.5	-	-	-	100.5
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0.5	-	-	-	9.2

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	3	29	314	225	21
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	38	38	92	92	92	92
Heavy Vehicles, %	0	100	0	3	5	9
Mvmt Flow	0	8	32	341	245	23

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	660	261	267 0
Stage 1	256	-	- -
Stage 2	404	-	- -
Critical Hdwy	6.4	7.2	4.1 -
Critical Hdwy Stg 1	5.4	-	- -
Critical Hdwy Stg 2	5.4	-	- -
Follow-up Hdwy	3.5	4.2	2.2 -
Pot Cap-1 Maneuver	431	590	1308 -
Stage 1	791	-	- -
Stage 2	679	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	418	587	1302 -
Mov Cap-2 Maneuver	418	-	- -
Stage 1	791	-	- -
Stage 2	659	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	11.2	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1302	-	587	-	-
HCM Lane V/C Ratio	0.024	-	0.013	-	-
HCM Control Delay (s)	7.8	0	11.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

HCM 2010 TWSC
2: Westboro Rd & Pine St

Nature's Remedy
Existing PM Peak

Intersection

Int Delay, s/veh 5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	49	142	350	140	129	227
Conflicting Peds, #/hr	2	0	0	2	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	83	83	76	76
Heavy Vehicles, %	8	1	1	1	2	1
Mvmt Flow	58	169	422	169	170	299

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	594	0	796
Stage 1	-	-	510
Stage 2	-	-	286
Critical Hdwy	4.18	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.272	-	3.518
Pot Cap-1 Maneuver	953	-	356
Stage 1	-	-	603
Stage 2	-	-	763
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	951	-	332
Mov Cap-2 Maneuver	-	-	332
Stage 1	-	-	601
Stage 2	-	-	714

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	951	-	-	-	880
HCM Lane V/C Ratio	0.061	-	-	-	0.532
HCM Control Delay (s)	9	-	-	-	13.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	3.2

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	12	2	261	249	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	76	76	82	82
Heavy Vehicles, %	6	0	0	2	2	0
Mvmt Flow	21	15	3	343	304	7

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	656	307	311 0
Stage 1	307	-	- -
Stage 2	349	-	- -
Critical Hdwy	6.46	6.2	4.1 -
Critical Hdwy Stg 1	5.46	-	- -
Critical Hdwy Stg 2	5.46	-	- -
Follow-up Hdwy	3.554	3.3	2.2 -
Pot Cap-1 Maneuver	424	738	1261 -
Stage 1	737	-	- -
Stage 2	705	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	423	738	1261 -
Mov Cap-2 Maneuver	423	-	- -
Stage 1	737	-	- -
Stage 2	703	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1261	-	514	-	-
HCM Lane V/C Ratio	0.002	-	0.07	-	-
HCM Control Delay (s)	7.9	0	12.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection

Int Delay, s/veh 5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	59	171	412	161	149	267
Conflicting Peds, #/hr	2	0	0	2	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	1	1	1	2	1
Mvmt Flow	64	186	448	175	162	290

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	627	0	853
Stage 1	-	-	539
Stage 2	-	-	314
Critical Hdwy	4.18	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.272	-	3.518
Pot Cap-1 Maneuver	926	-	330
Stage 1	-	-	585
Stage 2	-	-	741
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	924	-	305
Mov Cap-2 Maneuver	-	-	305
Stage 1	-	-	583
Stage 2	-	-	687

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	924	-	-	-	841
HCM Lane V/C Ratio	0.069	-	-	-	0.538
HCM Control Delay (s)	9.2	-	-	-	14.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	3.3

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	20	14	3	308	293	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	2	2	0
Mvmt Flow	22	15	3	335	318	8

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	663	322	326 0
Stage 1	322	-	- -
Stage 2	341	-	- -
Critical Hdwy	6.46	6.2	4.1 -
Critical Hdwy Stg 1	5.46	-	- -
Critical Hdwy Stg 2	5.46	-	- -
Follow-up Hdwy	3.554	3.3	2.2 -
Pot Cap-1 Maneuver	420	724	1245 -
Stage 1	726	-	- -
Stage 2	711	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	419	724	1245 -
Mov Cap-2 Maneuver	419	-	- -
Stage 1	726	-	- -
Stage 2	709	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1245	-	507	-	-
HCM Lane V/C Ratio	0.003	-	0.073	-	-
HCM Control Delay (s)	7.9	0	12.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	60	171	412	164	152	271
Conflicting Peds, #/hr	2	0	0	2	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	1	1	1	2	1
Mvmt Flow	65	186	448	178	165	295

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	630	0	857
Stage 1	-	-	541
Stage 2	-	-	316
Critical Hdwy	4.18	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.272	-	3.518
Pot Cap-1 Maneuver	924	-	328
Stage 1	-	-	583
Stage 2	-	-	739
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	922	-	303
Mov Cap-2 Maneuver	-	-	303
Stage 1	-	-	581
Stage 2	-	-	684

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	922	-	-	-	841
HCM Lane V/C Ratio	0.071	-	-	-	0.547
HCM Control Delay (s)	9.2	-	-	-	14.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	3.4

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	31	21	7	308	293	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	0	0	2	2	0
Mvmt Flow	34	23	8	335	318	17

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	677	327	336 0
Stage 1	327	-	- -
Stage 2	350	-	- -
Critical Hdwy	6.46	6.2	4.1 -
Critical Hdwy Stg 1	5.46	-	- -
Critical Hdwy Stg 2	5.46	-	- -
Follow-up Hdwy	3.554	3.3	2.2 -
Pot Cap-1 Maneuver	412	719	1235 -
Stage 1	722	-	- -
Stage 2	705	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	409	719	1235 -
Mov Cap-2 Maneuver	409	-	- -
Stage 1	722	-	- -
Stage 2	699	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	13.2	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1235	-	495	-	-
HCM Lane V/C Ratio	0.006	-	0.114	-	-
HCM Control Delay (s)	7.9	0	13.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-